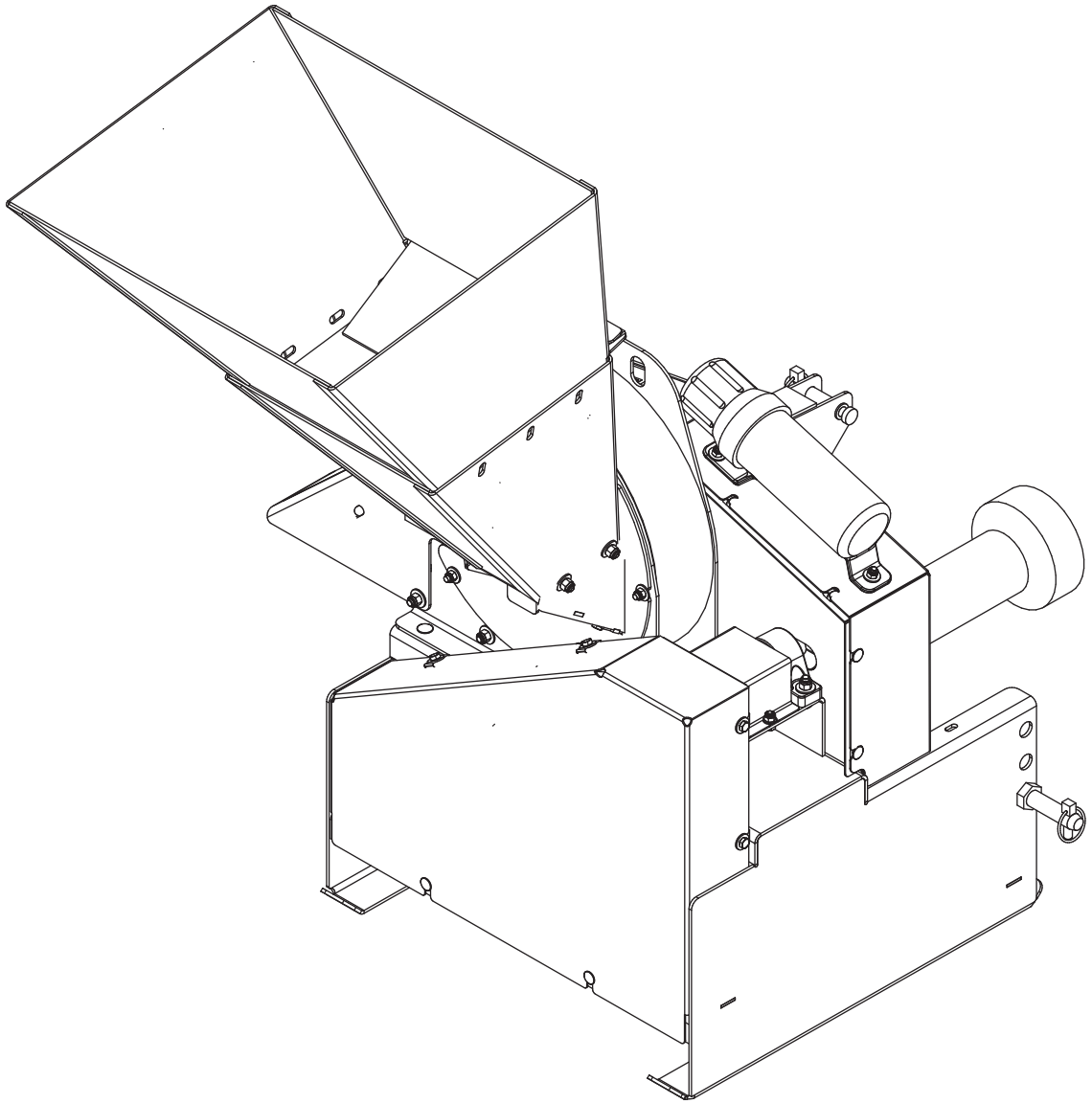
WOODS

CHIPPER

TCH4500



OPERATOR'S MANUAL

WOODS®
Tested. Proven. Unbeatable.

MAN0458
(Rev. 2/13/2012)

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the Woods® dealer. Read manual instructions and safety rules. Make sure all items on the Dealer's Pre-Delivery and Delivery Check Lists in the Operator's Manual are completed before releasing equipment to the owner.

The dealer must complete the online Product Registration form at the Woods Dealer Website which certifies that all Dealer Check List items have been completed. Dealers can register all Woods product at dealer.WoodsEquipment.com under Product Registration.

Failure to register the product does not diminish customer's warranty rights.

TO THE OWNER:

Read this manual before operating your Woods equipment. The information presented will prepare you to do a better and safer job. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all adjustment and operating procedures before attempting to operate. Replacement manuals can be obtained from your dealer. To locate your nearest dealer, check the Dealer Locator at www.WoodsEquipment.com, or in the United States and Canada call 1-800-319-6637.

The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Observe all safety information in this manual and safety decals on the equipment.

For service, your authorized Woods dealer has trained mechanics, genuine Woods service parts, and the necessary tools and equipment to handle all your needs.

Use only genuine Woods service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided:

Model: _____ **Date of Purchase:** _____

Serial Number: (see Safety Decal section for location) _____

Provide this information to your dealer to obtain correct repair parts.

Throughout this manual, the term **NOTICE** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION, WARNING,** and **DANGER** are used in conjunction with the Safety-Alert Symbol (a triangle with an exclamation mark) to indicate the degree of hazard for items of personal safety.

This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

WARNING Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

IMPORTANT or ***NOTICE*** Is used to address practices not related to physical injury.

NOTE Indicates helpful information.

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BMP®
CENTRAL FABRICATORS®
GANNON®
GILL®
WAIN-ROY®
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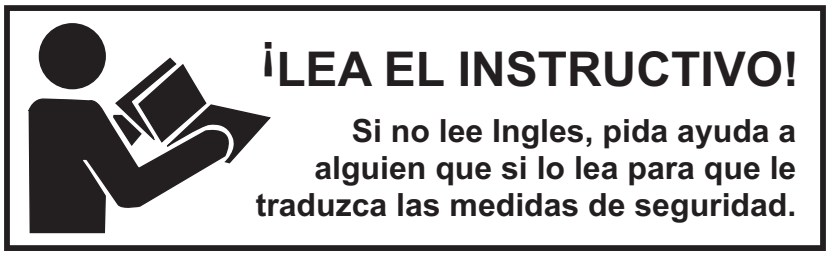
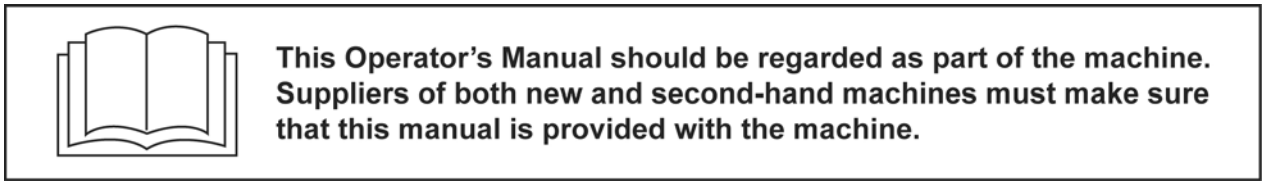
REPLACEMENT PARTS WARRANTY . . . . . INSIDE BACK COVER

PRODUCT WARRANTY . . . . . BACK COVER




This Operator's Manual should be regarded as part of the machine. Suppliers of both new and second-hand machines must make sure that this manual is provided with the machine.

GENERAL INFORMATION

The purpose of this manual is to assist you in operating and maintaining your chipper. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance. These instructions have been compiled from extensive field experience and engineering data. Some information may be general in nature due to unknown and varying operating conditions. However, through experience and these instructions, you should be able to develop procedures suitable to your particular situation.

The illustrations and data used in this manual were current at the time of printing, but due to possible inline production changes, your chipper may vary slightly in detail. We reserve the right to redesign and change the chipper as may be necessary without notification.

Throughout this manual, references are made to right and left directions. These are determined by standing behind the equipment facing the direction of forward travel.

SPECIFICATIONS

	TCH4500
Overall Size	56-1/2" x 51-1/2" x 36-1/2"
Maximum Chipper Capacity	4-1/2 dia.
Chipper Blade	2 - Reversible 3/8" x 5-3/32" x 4"
Rotor Size	14" dia. x 1
Rotor Weight (with blades)	49 lbs
Rotor Weight (without blades)	45 lbs
Discharge Size	4.5" x 9" (Standard) 4.5" x 4.5" (Optional)
Drive Type	Belt
Belt Size	2RB47 ARMID Construction
Weight	390 lbs

SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by an operator's single careless act.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, judgement, and proper training of personnel involved in the operation, transport, maintenance, and storage of equipment.

It has been said, "The best safety device is an informed, careful operator." We ask you to be that kind of operator.

TRAINING

■ **Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals and safety decals are available from your dealer. To locate your nearest dealer, check the Dealer Locator at www.WoodsEquipment.com, or in the United States and Canada call 1-800-319-6637.) Failure to follow instructions or safety rules can result in serious injury or death.**

■ **If you do not understand any part of this manual and need assistance, see your dealer.**

■ **Know your controls and how to stop engine and attachment quickly in an emergency.**

■ **Operators must be instructed in and be capable of the safe operation of the equipment, its attachments, and all controls. Do not allow anyone to operate this equipment without proper instructions.**

■ **Never allow children or untrained persons to operate equipment.**

PREPARATION

■ **Check that all hardware is properly installed. Always tighten to torque chart specifications unless instructed otherwise in this manual.**

■ **Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.**

■ **Wear safety glasses and hearing protection at all times when operating this machine.**

■ **Make sure attachment is properly secured, adjusted, and in good operating condition.**

■ **Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.**

■ **Make sure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)**

■ **Make sure shields and guards are properly installed and in good condition. Replace if damaged.**

OPERATION

■ **Keep bystanders at least 50 feet away from area of operation.**

■ **Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.**

■ **Do not put chipper into service unless all shields and guards are in place and in good condition. Replace if damaged.**

■ **Do not operate or transport equipment while under the influence of alcohol or drugs.**

■ **Operate only in daylight or good artificial light.**

■ **Do not operate chipper on a paved, concrete, or hard gravel surface which can cause discharged material to rebound and kick back.**

■ **Make sure the cutting chamber is empty before starting the machine.**

■ **Keep hands, feet, hair, and clothing away from equipment while engine is running. Stay clear of all moving parts.**

■ **Never allow riders on power unit or attachment.**

■ **Always sit in power unit seat when operating controls or starting engine. Securely fasten seat belt, place transmission in neutral, engage brake, and ensure all other controls are disengaged before starting power unit engine.**

■ **Shift tractor transmission into park or neutral and set brakes before engaging PTO and chipper.**

■ **Operate tractor PTO at 540 RPM. Do not exceed.**

■ **Do not operate or transport on steep slopes.**

■ **Use extreme care and reduce ground speed on slopes and rough terrain.**

(Safety Rules continued on next page)

SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

(Safety Rules continued from previous page)

■ **Before performing any service or maintenance, lower equipment to ground or block securely, turn off engine, remove key, and disconnect driveline from tractor PTO.**

■ **NEVER GO UNDERNEATH EQUIPMENT. Never place any part of the body underneath equipment or between moveable parts even when the engine has been turned off. Hydraulic system leak-down, hydraulic system failures, mechanical failures, or movement of control levers can cause equipment to drop or rotate unexpectedly and cause severe injury or death.**

- **Service work does not require going underneath implement.**
- **Read Operator's Manual for service instructions or have service performed by a qualified dealer.**

■ **Always stand clear of discharge area when operating this machine. Keep face and body away from feed and discharge openings.**

■ **Keep hands and feet out of feed and discharge openings while machine is operating to avoid serious personal injury. Turn off power and allow machine to come to a complete stop before clearing obstructions.**

■ **Do not climb on machine when operating. Keep proper balance and footing at all times.**

■ **When feeding material into machine, do not allow metal, rocks, bottles, cans, or any other foreign material to be fed into the machine.**

■ **Make sure debris does not blow into traffic, parked cars, or pedestrians.**

■ **Do not allow processed material to build up in the discharge area. This may prevent proper discharge and can result in kickback of material through the feed opening.**

■ **Shut off machine immediately if it becomes clogged, the cutting mechanism strikes any foreign object, or the machine starts vibrating or making an unusual noise. Shut off power source and make sure all moving parts have come to a complete stop. After machine stops:**

- **Inspect for damage.**
- **Replace or repair any damaged parts.**
- **Check for and tighten any loose parts.**

TRANSPORTATION

■ **Reduce transport speed to avoid bouncing and brief loss of steering control.**

■ **Always comply with all state and local lighting and marking requirements.**

■ **Never allow riders on power unit or attachment.**

■ **Do not operate PTO during transport.**

■ **Do not operate or transport on steep slopes.**

■ **Do not operate or transport equipment while under the influence of alcohol or drugs.**

MAINTENANCE

■ **Service and maintenance work not covered in OWNER SERVICE must be done by a qualified dealership. Special skills, tools, and safety procedures may be required. Failure to follow these instructions can result in serious injury or death.**

■ **Before performing any service or maintenance, lower equipment to ground or block securely, turn off engine, remove key, and disconnect driveline from tractor PTO.**

■ **Do not modify or alter or permit anyone else to modify or alter the equipment or any of its components in any way.**

■ **Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.**

■ **Do not allow bystanders in the area when operating, attaching, removing, assembling, or servicing equipment.**

■ **Make sure attachment is properly secured, adjusted, and in good operating condition.**

■ **Never perform service or maintenance with engine running.**

■ **Keep all persons away from operator control area while performing adjustments, service, or maintenance.**

■ **Tighten all bolts, nuts, and screws to torque chart specifications. Check that all cotter pins are installed securely to ensure equipment is in a safe condition before putting unit into service.**

■ **Make sure shields and guards are properly installed and in good condition. Replace if damaged.**

SAFETY RULES

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

■ **Make sure all safety decals are installed. Replace if damaged. (See Safety Decals section for location.)**

■ **When lubricating telescoping PTO drives, keep fingers out of shield access slots to prevent injury.**

■ **Check blade bolts for proper torque after every 8 hours of operation. Check blades and rotate or resharpen daily as required to keep blades sharp. Failure to do so may cause poor performance, damage, or personal injury and will void the machine warranty.**

■ **Before inspecting, servicing, storing, or changing an accessory, shut off power source, make sure all moving parts have come to a complete stop, and disconnect PTO driveline.**

STORAGE

■ **Block equipment securely for storage.**

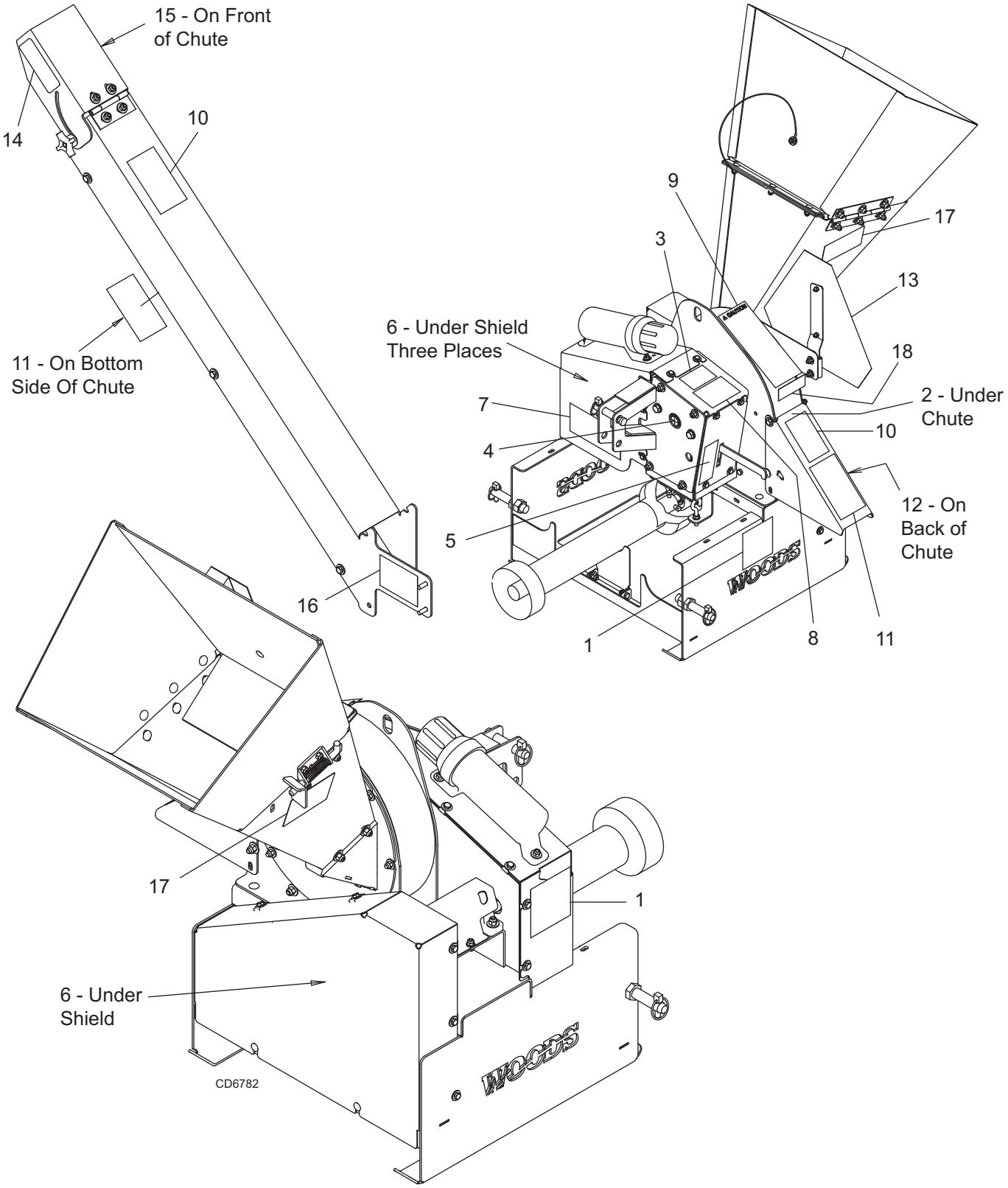
■ **Keep children and bystanders away from storage area.**

■ **Follow manual instructions for storage.**

SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!



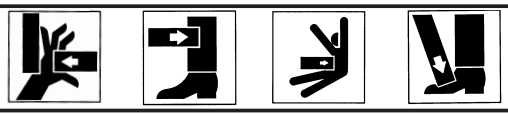
SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!

1 - PN 1003751

WARNING



CRUSHING AND PINCHING HAZARD

- Be extremely careful handling various parts of the machine. They are heavy and hands, fingers, feet, and other body parts could be crushed or pinched between tractor and implement.
- Operate tractor controls from tractor seat only.
- Do not stand between tractor and implement when tractor is in gear.
- Make sure parking brake is engaged before going between tractor and implement.
- Stand clear of machine while in operation or when it is being raised or lowered.

FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH.

1003751-A

2 - PN 18869

DANGER

SHIELD MISSING

DO NOT OPERATE - PUT SHIELD ON

18869-B

3 - PN 18866

WARNING

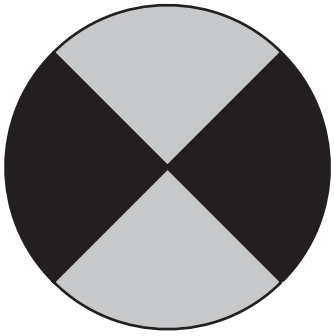
DO NOT EXCEED PTO SPEED OF

540 RPM

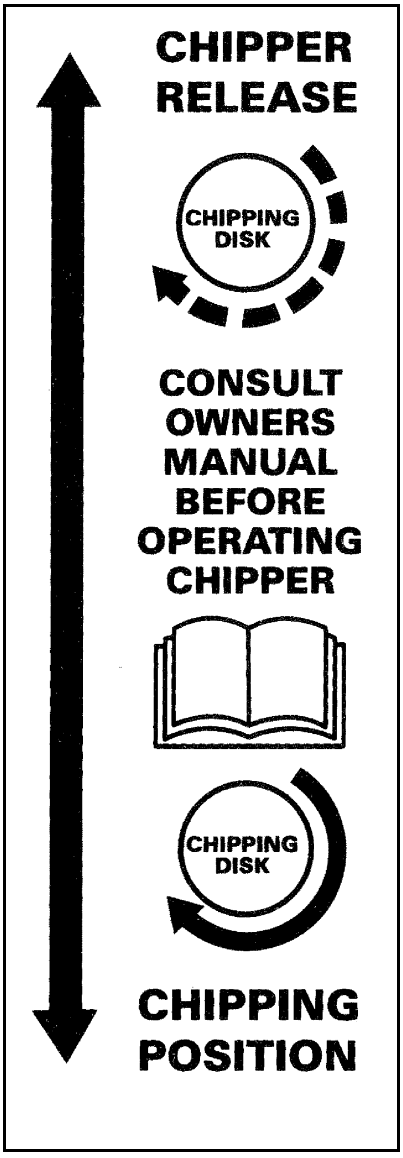
PTO speeds higher than 540 RPM can cause equipment failure and personal injury.

18866-D

4 - PN 1015934



5 - PN 1015933



6 - PN 51361

DANGER

SHIELD HAS BEEN REMOVED.
DO NOT OPERATE WITHOUT SHIELD IN PLACE. SERIOUS INJURY OR DEATH MAY OCCUR.

PN 17423

7 - PN51281

DANGER
ENTANGLEMENT IN ROTATING DRIVELINE CAN CAUSE SERIOUS INJURY OR DEATH. KEEP HANDS, FEET AND BODY AWAY. DO NOT OPERATE MACHINE WITHOUT SHIELDS, GUARDS OR SCREEN IN PLACE. DO NOT OPERATE MACHINE AT PTO SPEEDS OVER 540 RPM.
PN 16033

SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!

8 - PN 1015967

WARNING

CHECK BOLTS DAILY AND KEEP BLADES SHARP
CHECK BLADE, ANVIL AND FEED ROLLER BOLTS FOR PROPER TORQUE AFTER EVERY 8 HOURS OF OPERATION. CHECK BLADES AND ROTATE OR RESHARPEN DAILY OR AS REQUIRED TO KEEP THE BLADES SHARP. REFER TO THE OWNERS MANUAL FOR INSTRUCTIONS. FAILURE TO DO SO MAY CAUSE DECREASED PERFORMANCE, DAMAGE, OR PERSONAL INJURY AND WILL VOID THE MACHINE WARRANTY.

PN 12010

10 - PN 51312

DANGER
FLYING DEBRIS FROM DISCHARGE
KEEP CLEAR OF DISCHARGE AT ALL TIMES. POINT DISCHARGE AT AREAS FREE OF BYSTANDERS OR ANYTHING THAT COULD BE DAMAGED BY FLYING DEBRIS. DO NOT CLEAN OR ADJUST MACHINE UNLESS ENGINE AND ROTOR HAVE COME TO A COMPLETE STOP. DO NOT OPERATE WITHOUT ALL GUARDS IN PLACE.
PN 16558

11 - PN 51373

DANGER
ROTATING CUTTING BLADES
KEEP HANDS AND FEET OUT OF INLET AND DISCHARGE OPENINGS WHILE MACHINE IS OPERATING TO AVOID SERIOUS PERSONAL INJURY. STOP ENGINE, REMOVE SPARK PLUG WIRE AND ALLOW MACHINE TO COME TO A COMPLETE STOP BEFORE CLEARING OBSTRUCTIONS OR MAKING ADJUSTMENTS.
PN 17837

9 - PN 1017429

CAUTION

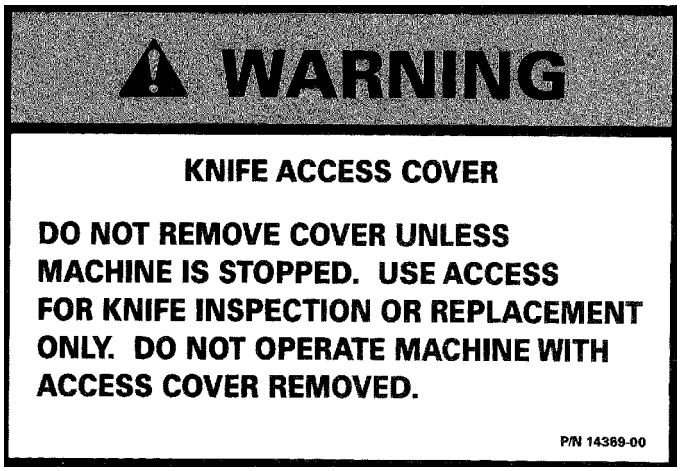
1) Become familiar with the Owners Manual before attempting to operate this equipment.
2) Do not allow children to operate this equipment. Do not operate this equipment in the vicinity of bystanders.
3) Do not allow hands or any other part of the body or clothing inside the feeding chamber, discharge chute, or near any moving part.
4) Before inspecting or servicing any part of the machine, shut off power source and make sure all moving parts have come to a complete stop.
5) Avoid wearing loose-fitting clothing.
6) Operate only on a level surface. Keep proper balance and footing at all times. Do not operate machine on a paved or gravel surface.
7) Before starting the machine, check that all screws, nuts, bolts and other fasteners are properly secured. Make certain that the cutting chamber is empty. Do not operate without guard or screens in place.
8) When feeding shreddable material into the equipment, be extremely careful that pieces of metal, rocks, bottles, cans or other foreign objects are not included.
9) Obtain and wear safety glasses at all times while operating machine.
10) If the cutting mechanism strikes any foreign object, or if the machine should start making any unusual noises or vibration, immediately shut off and allow the machine to stop.
    1) Inspect for damage
    2) Replace or repair any damaged parts.
    3) Check for and tighten any loose parts.
11) Do not allow processed material to build up in the discharge area; this may prevent proper discharge and can result in kickback of material through the discharge opening.
12) Keep all guards and deflectors in place and in good working condition. Replace any damaged decals.
13) Always stand clear of the discharge area when operating this machine. Keep face and body back from the feed opening.
14) If the machine becomes clogged, allow machine to come to a complete stop before clearing debris.
15) Set parking brake of power unit before operation.

SAFETY & INSTRUCTIONAL DECALS

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

Replace Immediately If Damaged!

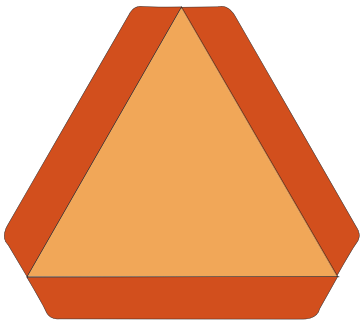
12 - PN 1015966


WARNING
KNIFE ACCESS COVER
DO NOT REMOVE COVER UNLESS MACHINE IS STOPPED. USE ACCESS FOR KNIFE INSPECTION OR REPLACEMENT ONLY. DO NOT OPERATE MACHINE WITH ACCESS COVER REMOVED.
P/N 14369-00

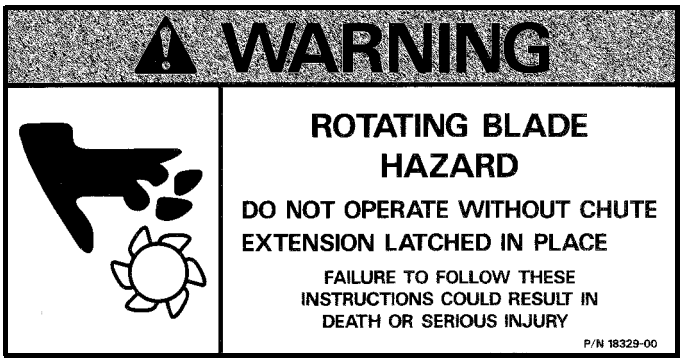
16 - PN 51284

WARNING
KNIFE ACCESS COVER
DO NOT REMOVE COVER UNLESS MACHINE IS STOPPED AND SPARK PLUG WIRE OR DRIVE SHAFT IS DISCONNECTED. USE ACCESS FOR KNIFE INSPECTION OR REPLACEMENT ONLY. DO NOT OPERATE MACHINE WITH ACCESS COVER REMOVED.
PN 16085

13 - PN 24611



17 - PN 1017433


WARNING
ROTATING BLADE HAZARD
DO NOT OPERATE WITHOUT CHUTE EXTENSION LATCHED IN PLACE
FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN DEATH OR SERIOUS INJURY
P/N 18329-00

14 - PN 20106
Red Reflector - Rear

15 - PN 20105
Amber Reflector - Front

18 - SERIAL NUMBER PLATE

BE CAREFUL!

Use a clean, damp cloth to clean safety decals.

Avoid spraying too close to decals when using a pressure washer; high-pressure water can enter through very small scratches or under edges of decals causing them to peel or come off.

Replacement safety decals can be ordered free from your Woods dealer. To locate your nearest dealer, check the Dealer Locator at www.WoodsEquipment.com, or in the United States and Canada call 1-800-319-6637.

OPERATION

The operator is responsible for the safe operation of this chipper. The operator must be properly trained. Operators should be familiar with the tractor, chipper, and all safety practices before starting operation. Read the safety rules and safety decals on page 5 through page 11.

⚠ WARNING

■ Safety instructions are important! Read all attachment and power unit manuals; follow all safety rules and safety decal information. (Replacement manuals and safety decals are available from your dealer. To locate your nearest dealer, check the Dealer Locator at www.WoodsEquipment.com, or in the United States and Canada call 1-800-319-6637.) Failure to follow instructions or safety rules can result in serious injury or death.

■ Keep bystanders at least 50 feet away from area of operation.

⚠ CAUTION

■ Know your controls and how to stop engine and attachment quickly in an emergency.

■ Operators must be instructed in and be capable of the safe operation of the equipment, its attachments, and all controls. Do not allow anyone to operate this equipment without proper instructions.

■ Never allow children or untrained persons to operate equipment.

■ Always wear relatively tight and belted clothing to avoid getting caught in moving parts. Wear sturdy, rough-soled work shoes and protective equipment for eyes, hair, hands, hearing, and head; and respirator or filter mask where appropriate.

■ Make sure attachment is properly secured, adjusted, and in good operating condition.

■ Do not put chipper into service unless all shields and guards are in place and in good condition. Replace if damaged.

CHIPPER PRE-OPERATION

The chipping operation takes place on the side of the machine, where hardened steel chipper blades are mounted on a rotating rotor assembly. Material fed into the chipper hopper is sliced into small chips and propelled out though the discharge cap. The chips can be diverted into a container or onto the ground.

As with any other piece of power equipment, getting to know the feel for how your machine operates and getting to know the best techniques for particular jobs are important to overall good performance.

NOTE: For operation of this chipper, references to right, left, forward, and rearward directions are determined from the operator's position in the tractor seat.

ATTACHING CHIPPER TO TRACTOR

⚠ WARNING

■ Make sure spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove.

IMPORTANT

■ Avoid driveline angle greater than 15-degrees up and down when the chipper is in use.

1. Attach chipper hitch pins to tractor 3-point lower lift arms and secure.
2. Attach tractor top link to chipper clevis and secure with tractor top link pin.
3. Connect driveline to tractor PTO shaft.

   NOTE: The minimum and maximum telescoping on the PTO shaft is 18.11 inches to 24.49 inches. The PTO shaft may need to be shortened depending on the tractor the chipper is mounted on. To shorten the PTO shaft see Shorten Driveline, page 26.
4. Slide slip collar back or push slip pin in to make connection.
5. Make sure connection is secure. Slip collar or slip pin should snap back into original position.
6. Adjust the tractor 3-point arm anti-sway devices to prevent chipper from swaying side-to-side during transport. Adjust top link so chipper is level front to back.
7. Adjust or remove tractor drawbar so that it will not interfere with chipper or driveline.

TRACTOR STABILITY

⚠ WARNING

■ **A minimum 20% of tractor and equipment weight must be on the tractor front wheels when attachments are in transport position. Without this weight, front tractor wheels could raise up resulting in loss of steering. The weight may be attained with front wheel weights, ballast in tires or front tractor weights. Weigh the tractor and equipment. Do not estimate.**

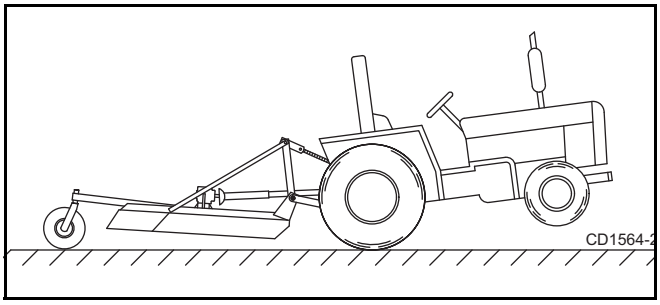


Figure 1. Tractor Stability

STARTING THE CHIPPER

⚠ WARNING

■ **Do not put chipper into service unless all shields and guards are in place and in good condition. Replace if damaged.**

■ **Make sure the cutting chamber is empty before starting the machine.**

■ **Shift tractor transmission into park or neutral and set brakes before engaging PTO and chipper.**

1. Make sure the cutting chamber is empty before starting and the chipper engagement handle is in the RELEASE (up) position.
2. Set parking brake, start the tractor, and engage the tractor PTO.
3. Move the chipper engagememement handle to the CHIPPING (down) position and increase the engine speed to the rated PTO rpm position.

NOTE: Carefully engage the rotor by slowly moving the engagement handle to the CHIPPING position, allowing the rotor to speed up gradually, increase the throttle to full throttle position. Engaging the clutch too quickly with the engine at full or half throttle will bog down the engine and will shorten the life of the belt.

Figure 2. Chipper Engagement Handle

STOPPING THE CHIPPER

1. Lower the tractor rpm's.
2. Move the chipper engagement handle to the RELEASE (up) position.
3. Disengage the tractor PTO handle and shut off the engine.
4. Allow chipper to come to a complete stop.

CLEARING PLUGGED DISK

⚠ WARNING

■ **Keep hands and feet out of feed and discharge openings while machine is operating to avoid serious personal injury. Turn off power and allow machine to come to a complete stop before clearing obstructions.**

1. Remove the discharge cap.
2. Remove debris, taking care to avoid the chipper blades which can be extremely sharp.
3. Replace discharge cap once debris is removed.

OPERATING TECHNIQUE

⚠ WARNING

■ Make sure debris does not blow into traffic, parked cars, or pedestrians.

⚠ CAUTION

■ When feeding material into machine, do not allow metal, rocks, bottles, cans, or any other foreign material to be fed into the machine.

1. Run chipper at full operating speed before starting to chop material.
2. Select limbs that are up to 4-1/2 inches in diameter. Trim side branches that cannot be bent enough to feed into the chipper hopper. Hold small diameter branches together in a bundle and feed in together.
3. Make sure pieces of metal, rocks, cans, and other foreign objects are removed before feeding chipable material into the machine.
4. Feed brush from the side of the chipper hopper to avoid being hit by the brush moving into the chipper.
5. Do not lean over the chipper hopper to push objects into the chipper. Use a push stick or brush paddle.
6. Never use a shovel or fork to feed brush into the chute. They can be chipped, are expensive to replace, and cause extensive damage to the chipper. Metal pieces can be ejected from the chipper hopper and cause serious injury or death.
7. Never feed brush into the chipper hopper with your feet.
8. Place limb, butt end first, into the chipper hopper until it contacts the chipper blades. The actual feed rate of the limb into the chipper will depend on the type of material fed and sharpness of the cutting blades.
9. Stop the material feeding and allow the engine to recover if the engine slows to where it may stall.
10. Remove the branch and rotate it before reinserting it into the chute if the chipper jams.
11. Alternately insert and retract the limb or insert continuously at a rate that will not stall the engine.
12. Chipping dead, dry material will create heat and dull the chipping blades quickly.
13. Alternate green material with dry material to lubricate the chipping blades for longer life and better performance.
14. The chipping blades will become dull and will require periodic sharpening. Refer to Blade Sharpening, page 18 for sharpening instructions.

STORING CHIPPER

1. On a hard, level surface lower chipper with 3-point lift arms to the ground.
2. Disconnect drive shaft, 3-point lift arms, and top link from tractor.
3. Place drive shaft in storage position up off the ground.

CLEANING

After Each Use

- Remove large debris such as clumps of dirt, grass, crop residue, etc. from machine.
- Inspect machine and replace worn or damaged parts.
- Replace any safety decals that are missing or not readable.

Periodically or Before Extended Storage

- Clean large debris such as clumps of dirt, grass, crop residue, etc. from machine.
- Remove the remainder using a low-pressure water spray.
- Be careful when spraying near scratched or torn safety decals or near edges of decals as water spray can peel decal off surface.
- Be careful when spraying near chipped or scratched paint as water spray can lift paint.
- If a pressure washer is used, follow the advice of the pressure washer manufacturer.
- Inspect machine and replace worn or damaged parts.
- Sand down scratches and the edges of areas of missing paint and coat with Woods spray paint of matching color (purchase from your Woods dealer).
- Replace any safety decals that are missing or not readable (supplied free by your Woods dealer). See Safety Decals section for location drawing.

PRE-OPERATION CHECK LIST

(OWNER'S RESPONSIBILITY)

___ Review and follow all safety rules and safety decal instructions on safety rules, page 5 through page 11.

___ Check that all safety decals are installed and in good condition. Replace if damaged.

___ Check to make sure all shields and guards are properly installed and in good condition. Be sure that either the discharge shield or optional discharge tube is installed.

___ Check that all hardware and cotter pins are properly installed and secured.

___ Check that equipment is properly and securely attached to tractor.

___ Check all lubrication points and grease as instructed in page 16.

___ Make sure driveline spring-activated locking pin or collar slides freely and is seated firmly in tractor PTO spline groove and in gearbox spline groove.

___ Do not allow riders.

___ Check condition of chipper blades before operation.

SERVICE

The information in this section is written for operators who possess basic mechanical skills. If you need help, your dealer has trained service technicians available. For your protection, read and follow the safety information in this manual.

⚠ WARNING

■ **Before inspecting, servicing, storing, or changing an accessory, shut off power source, make sure all moving parts have come to a complete stop, and disconnect PTO driveline.**

LUBRICATION

1. Do not let excess grease collect on or around parts, particularly when operating in sandy areas.
2. Use a lithium grease of #2 consistency with a MOLY (molybdenum disulfide) additive for all locations unless otherwise noted.

   NOTE: Be sure to clean fittings thoroughly before attaching grease gun. One good pump of most guns is sufficient when the lubrication schedule is followed.

Service and Maintenance Schedule

		Frequency			
Component	**Maintenance Required**	**Before Each Use**	**Every 8 Hours**	**Every 25 Hours**	**Every 50 Hours**
Nuts & Bolts	Check	✔			
Chipper Blades	Check, (Sharpen if needed)	✔			
Belt Tension Pivot	Grease		✔		
PTO U-Joints	Grease		✔		
PTO Shaft (Inner)	Grease		✔		
PTO Shield Bearings	Grease		✔		
Belt Pulley Alignment	Check			✔	
Belt Condition	Check				✔
Entire Machine	Clean				✔
Rotor Bearing	Grease (See Figure 3)				✔

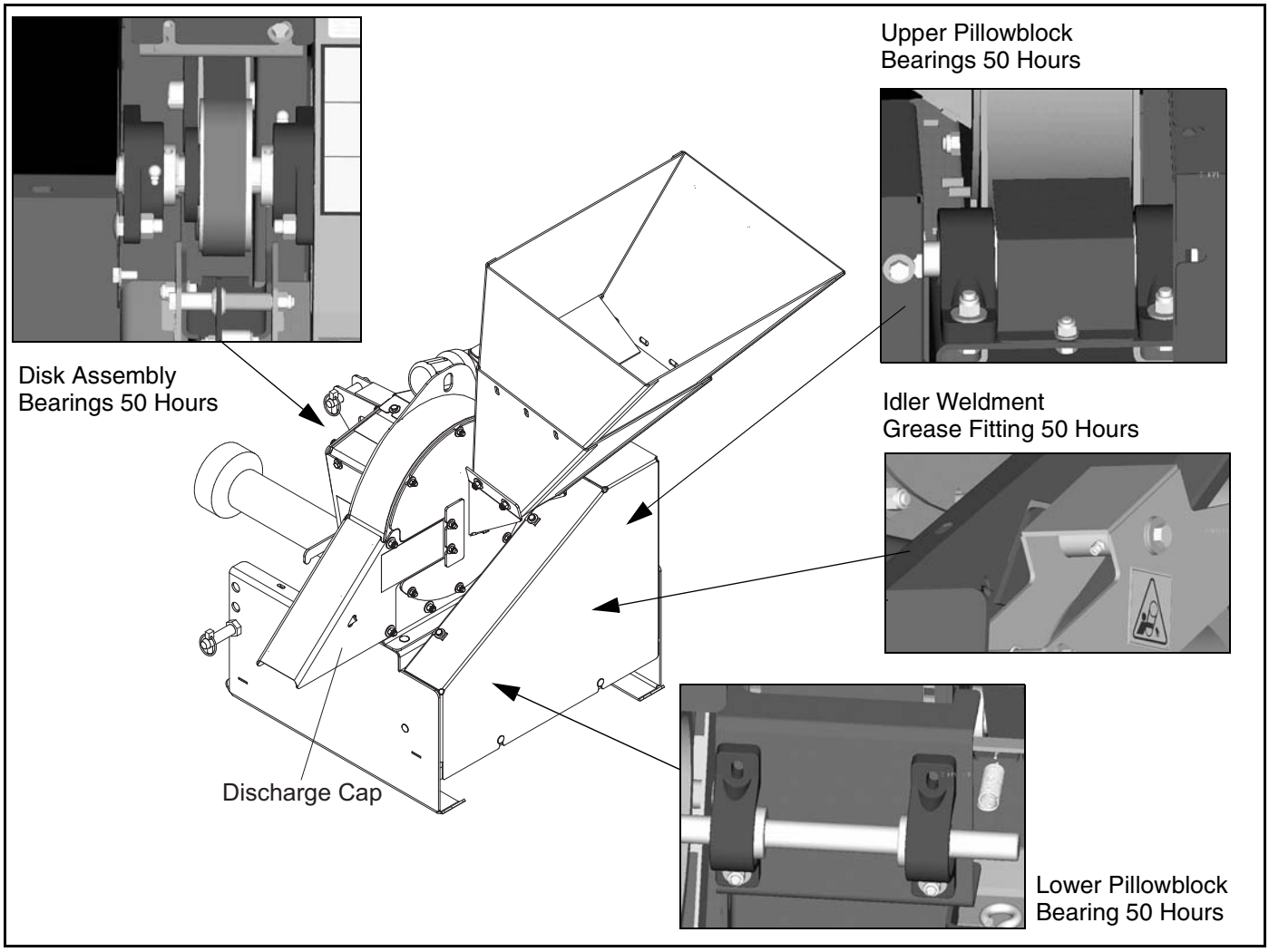


Figure 3. Lubrication Points

CHIPPER BLADES

Install Disk Lock

When working on disk assembly or changing blades, use a disk lock at all times. Follow steps to lock disk:

1. Remove discharge cap or optional discharge tube. See Figure 3 for discharge cap location.
2. Rotate the chipper disk until the hole on the chipper paddle is aligned with the hole on the chipper housing.
3. Install a punch or screwdriver into the holes this will prevent the disk from turning and lock the disk.

   NOTE: A bolt and nut from the discharge cap can also be used to lock the disk.

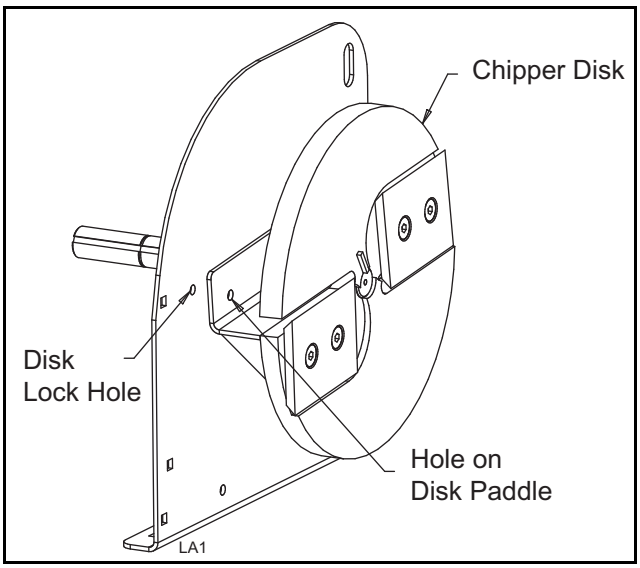


Figure 4. Disk Lock

Blade Servicing

The chipper blades will eventually become dull, making chipping difficult and adding strain on the machine. Poor chipping performance is usually a result of dull chipper blades. It is recommended that the blades be sharpened every 5 to 15 hours or if the chipper's performance has decreased. Check for the following symptoms and sharpen the blades as needed.

- Severe vibration when feeding material into the chipper.
- Small diameter branches do not self-feed.
- Chips discharge unevenly or have stringy tails, especially when chipping green branches.

Blade Removal & Cutting Edge Reversal

1. Remove the discharge cap or optional discharge tube from the chipper housing.
2. Install disk lock. See Install Disk Lock, page 17. The disk is restrained to remove blade.
3. Remove blade by removing lock nuts from chipper disk.
4. Inspect blades for cracks or nicks in cutting edge.
5. Turn cutting edge over and use new edge or sharpen if both edges have been used.
6. Remove disk lock, rotate chipper disk, align holes, insert disk lock, and remove blade, turn cutting edge or sharpen second blade.
7. Install discharge cap or optional discharge tube when blades have been reworked.

Blade Inspection

Before you sharpen the chipper blades, check for permanent damage. Replace if:

- There are cracks, broken corners or nicks greater than 1/8 inch. See Figure 5.
- The base of the cutting edge is worn or has been sharpened so that the edge extends less than 1/16 inch above the rotor chipping slot.

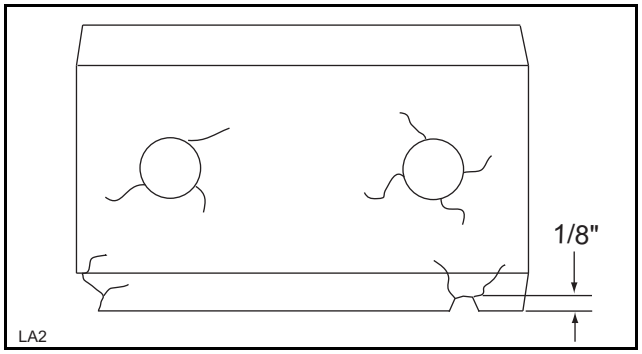


Figure 5. Inspect Blades

Blade Sharpening

1. Never sharpen or grind the mounting surface of the blades. This will cause the edge to roll and the blade will be damaged, resulting in poor chipping performance.
2. Regrind the angled edge of the chipper blade to 45-degrees. See Figure 6.
3. The blades can be ground on a bench grinder of a professional.
4. Make sure some type of fixture is used to correctly hold the blade at the proper angle.
5. Be careful when grinding so that the blades does not become overheated and change color. This will remove the heat-treated properties.
6. Use short grinding times and cool with water or some type of liquid coolant.
7. Remove an equal amount off each side of the blade to maintain rotor balance.
8. Small imperfections such as nicks and burrs on the flat side of the blade will not affect the chipping performance of the machine,
9. For blades that have been repeatedly sharpened, make sure that the sharpened surface extends past the chipping slot opening. If it does not extend past the opening, the blades must be replaced.

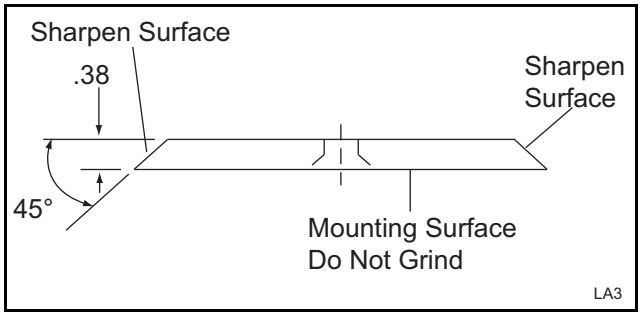


Figure 6. Double Edge Blade

Blade Installation

1. Lock disk assembly. See Install Disk Lock, page 17.
2. Place blade on the disk and secure into position using two 1/2 x 1-3/4 (ASTM F835) flat head screws and 1/2 lock nuts. Torque hardware to 120 lbs-ft.
3. Remove disk lock, rotate disk assembly, install disk lock, and install second blade.
4. Install discharge cap or optional discharge tube.

Blade Clearance

IMPORTANT

■ **Make sure that the clearance between the chipping anvil and ALL chipper blades is set to 1/16". All chipper blades should be rotated until even with the chipping anvil and measured.**

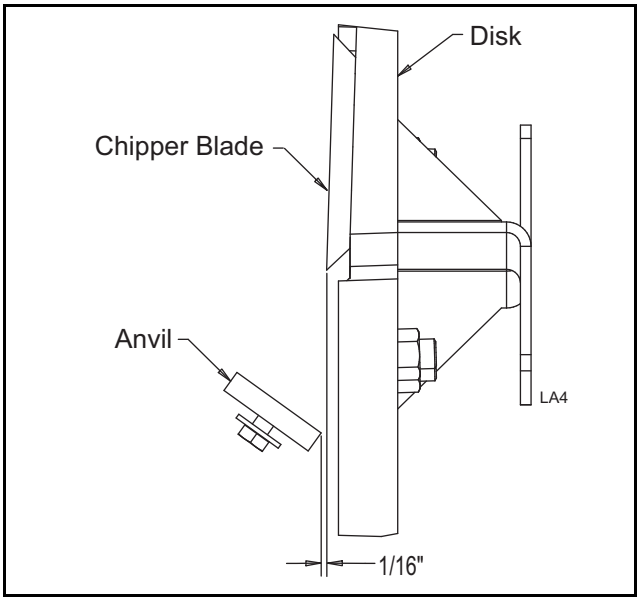


Figure 7. Anvil Clearance

The chipper blades should clear the chipping anvil by 1/16 inch. Anvil is located directly under the chipper discharge opening. Follow steps to adjust the blade clearance:

1. Remove the discharge cap or optional discharge tube for easier access to the anvil.
2. Rotate the disk assembly until a chipper blade is even with the chipping anvil.
3. Measure the amount of clearance between the chipper blade and the chipping anvil from inside the chipper housing. The minimum distance between the blade and the anvil should be 1/16 inch.
4. Adjust the chipping anvil by loosening the 5/16 bolts holding the anvil to the disk cover and sliding the anvil inward or outward until the 1/16 inch clearance is achieved.

   NOTE: If the chipping anvil is damaged or worn unevenly, remove hardware holding anvil to the disk cover. Rotate anvil to use one of the other three edges.
5. Tighten hardware to 19 lbs-ft.
6. Install discharge cap or optional discharge tube.

DRIVE BELT

Drive Belt Adjustment

Check the condition of the drive belt(s) annually or after every 25 hours of operation. Replace cracked, frayed. worn or stretched belt. Only replace drive belt with original banded type belt. Do not use single type belts.

To adjust belt: tighten eyebolt until belt deflection is 7/16" when a 20-lb load is placed against the belt. See Figure 9.

Front Drive Belt

Front Belt Removal

1. On a hard level surface lower chipper with 3-point lift arms to the ground.
2. Move engagement lever to the RELEASE (up) position.
3. Disconnect drive shaft, 3-point lift arms, and top link from tractor.
4. Place drive shaft in storage position up off the ground.
5. Remove belt shield from the chipper housing and save hardware.
6. Remove bearing support weldment from the chipper housing and save hardware.
7. Loosen the eyebolt to release tension on the belt.
8. Remove hardware and idler pulley from idler bracket.
9. Remove old belt from around both sheaves.

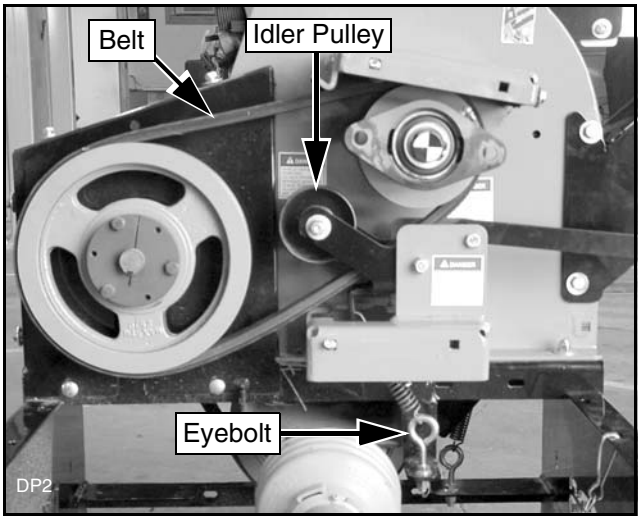


Figure 8. Front Belt Drive Assembly

Front Belt Installation

1. Place belt around both sheaves.
2. Attach idler pulley to idler bracket using hardware previously removed.
3. Tighten eyebolt until belt deflection is 7/16" when a 20 lb load is placed against the belt. See Figure 9.

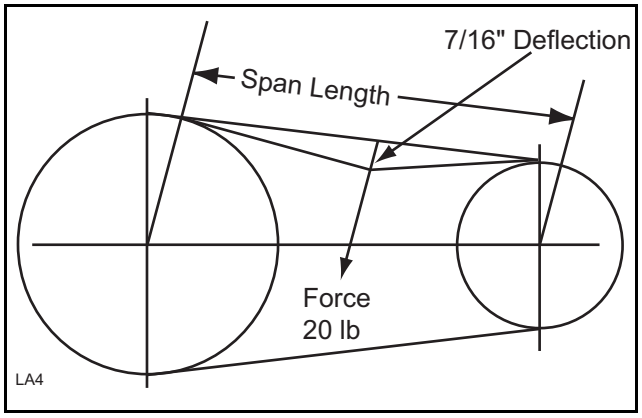


Figure 9. Belt Tension

4. Attach bearing support weldment to the chipper housing using hardware previously removed.
5. Attach belt shield to the chipper housing using hardware previously removed.

Rear Drive Belt

Rear Belt Removal

1. On a hard, level surface lower chipper with 3-point lift arms to the ground.
2. Move engagement lever to the RELEASE (up) position.
3. Disconnect drive shaft, 3-point lift arms, and top link from tractor.
4. Place drive shaft in storage position up off the ground.
5. Remove rear belt shield from the chipper housing and save hardware.
6. Loosen the eyebolt to release tension on the belt.
7. Remove hardware and idler pulley from idler weldment. Save hardware.
8. Remove hardware securing idler weldment to chipper housing and move idler weldment out of the way. Save hardware.
9. Remove old belt from around both sheaves.

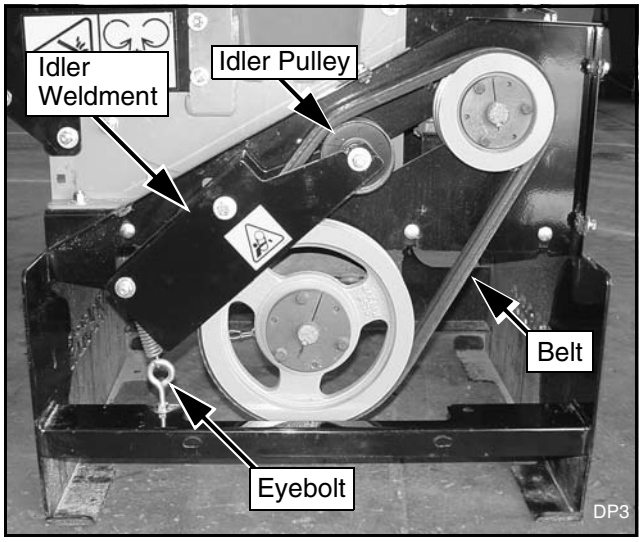


Figure 10. rear Belt Assembly

Rear Belt Installation

1. Place belt around both sheaves.
2. Attach idler weldment to chipper housing using hardware previously removed.
3. Attach idler pulley to idler weldment using hardware previously removed.
4. Tighten eyebolt until belt deflection is 7/16" when a 20-lb load is placed against the belt. See Figure 9.
5. Attach rear belt shield to the chipper housing using hardware previously removed.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Engine or rotor stalls or stops	Obstructed discharge	Use branch or similar object to clear discharge.
	Plugged rotor	Clear rotor. Feed material more evenly.
	Feeding material too large into chipper	Reduce size of material being fed into chipper.
Hard to feed chipper, requires excessive power to chip	Dull chipper blades	Reverse or sharpen blades.
	Obstructed discharge	Use branch or similar object to clear discharge.
	Improper blade clearance	Adjust clearance between chipper block and chipper blades.
Chipper requires excessive power or stalls	Obstructed discharge	Use branch or similar object to clear discharge.
	Plugged rotor	Clear rotor. Feed material more evenly.
	Wet or green material will not discharge	Alternately feed dry material.
Engine stalls or belt squeals when engaging clutch	Engine clutch too fast	Lower the engagement handle more slowly
	Plugged rotor	Clear rotor. Feed material more evenly.
	Belt tension too loose	Replace belt or spring.
Material from chipper wraps around rotor shaft	Stringy, green material bypasses chipper blades	Rotate branch of material when feeding to cut completely.
	Dull chipper blades	Reverse or sharpen blades.
	Improper blade clearance	Adjust clearance between chipper block and chipper blades.
Excessive vibration while running.	Drive system vibration	Check drive belts and pulleys for badly worn areas. Check for dull blade.
	Rotor out of balance	Inspect rotor for broken or missing blades; replace if needed. Check rotor to see if it wobbles. Check to see if rotor is assembled correctly.
	Chipper blade to chipper block clearance is incorrect	Set chipper blade/block clearance to recommended distance (1/16" to 1/8").

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Rotor will not turn	Drive belt too loose or broken	Replace belt or spring.
	Obstructed discharge	Use branch or similar object to clear discharge.
	Plugged rotor	Clear rotor. Feed material more evenly.
Cannot engage clutch	Improper belt tension; belt not under belt guide	Install belt properly; install belt under belt guide.
	Improper belt tension	Replace belt or spring.
Excessive belt wear	Not using correct belt	Contact your nearest authorized dealer to order the correct belt for your chipper.
	Pulley(s) damaged or worn	Replace pulley(s).
	Pulley(s) not in alignment	Align pulley(s) using straight edge.
	Belt tension too loose	Replace belt or spring.

ASSEMBLY INSTRUCTIONS

DEALER SET-UP INSTRUCTIONS

Assembly of this chipper is the responsibility of the Woods dealer. If should be delivered to the owner completely assembled, lubricated, and adjusted for normal chipping conditions.

Assembly will be easier if parts are aligned and loosely assembled before tightening hardware. Recommended torque values for hardware are located in the Bolt Torque Chart, page 35.

Complete check lists on page 27 when you have completed the assembly.

INSTALL 3-POINT HITCH PINS

1. Attach 3-point hitch pins to the chipper frame using nuts and washers supplied with each pin.
2. Torque pins to 474 lbs-ft.

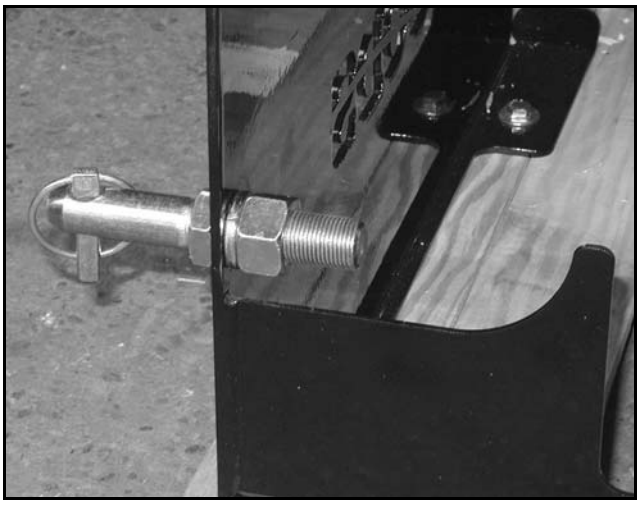


Figure 11. 3-Point Hitch Pin Installed, Left Pin Shown

INSTALL CHIPPER HOPPER

NOTE: Once all parts are installed and aligned torque hardware to specifications listed below.

3/8 NC x 1	35 lbs-ft (47 N-m)
5/16 NC x 1	19 lbs-ft (26 N-m)
5/16 NC x 3/4	19 lbs-ft (26 N-m)

1. Attach chipper hopper to the chipper housing using four carriage bolts (2), flat washers (1), and lock nuts (3). See Figure 12 and Figure 17.

NOTE: Make sure the heads of the carriage bolts are on the inside of the chute.

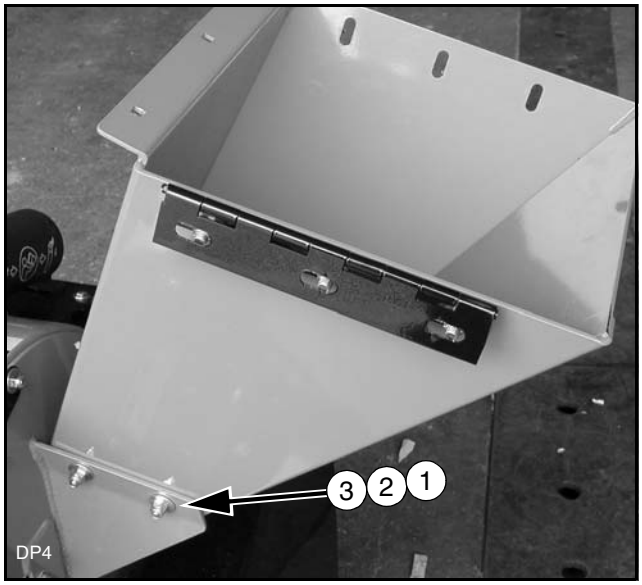


Figure 12. Chute and Hinge Installed

2. Attach rubber flap (8) to the chute flange using flap retainer strap (9), three carriage bolts (12), flat washers (13), and lock nuts (14). Attach lanyard (10) between the chute flange and washer (13) farthest from the hinge.

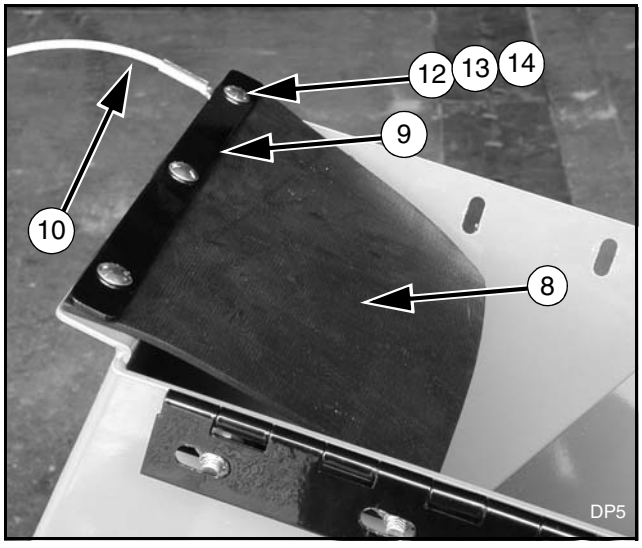


Figure 13. Rubber Flap and Lanyard Installed

3. Attach locking plate (15) to the opposite side of the chipper hopper using two carriage bolts (2), flat washers (1), and stop nuts (3).

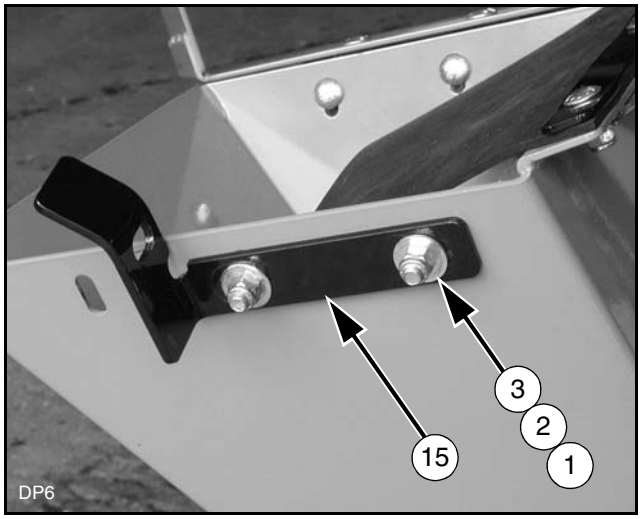


Figure 14. Locking Plate Installed

4. Place chute extension (7) on chipper hopper and attach it to hinge (6) using three carriage bolts (2), flat washers (1), and stop nuts (3).

5. Attach lanyard (10) to chute extension (7) using carriage bolt (16), flat washer (13), and lock nut (14).

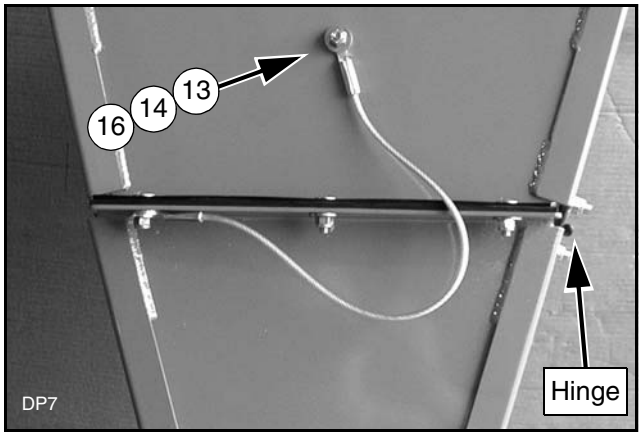


Figure 15. Lanyard Installed

6. Attach latch (11) to chute extension using two carriage bolts (16) and lock nuts (14).

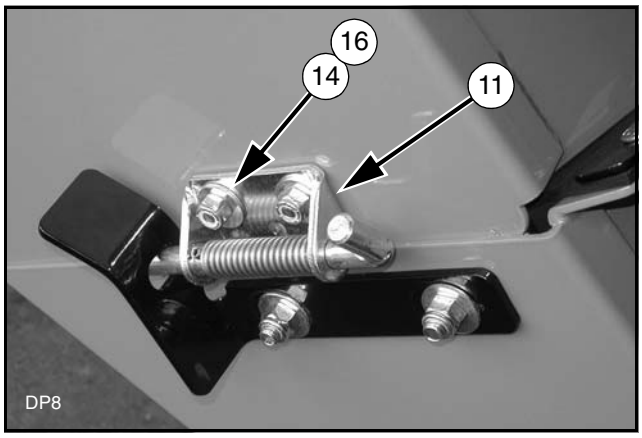
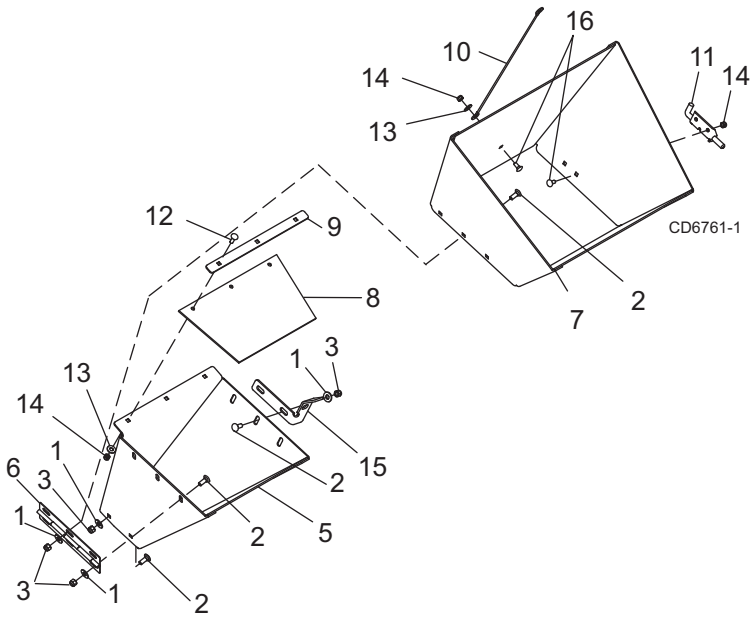


Figure 16. Hinge Latch Installed



1. 3/8 Flat washer
2. 3/8 NC x 1 Carriage bolt GR5
3. 3/8 NC Elastic stop nut
5. Chipper hopper
6. Hinge
7. Chipper extension
8. Rubber flap
9. Flap retainer strap
10. Lanyard, 20”
11. Latch
12. 5/16 NC x 1 Carriage bolt GR5
13. 5/16 Flat washer
14. 5/16 NC Lock nut
15. Locking plate
16. 5/16 NC x 3/4 Carriage bolt GR5

Figure 17. Chipper Hopper and Extension Installation

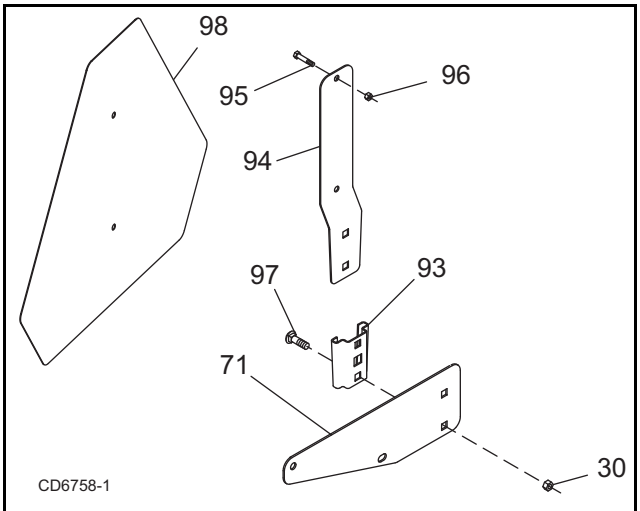
INSTALL SMV SIGN

1. Attach SMV (Slow Moving Vehicle) socket (93) to SMV emblem bracket (71) using two carriage bolts (97) and lock nuts (30). See Figure 18 and Figure 19.

2. Attach SMV sign (98) to SMV bracket (94) using two cap screws (95) and lock nuts (96).

3. Insert SMV sign into socket.

Figure 18. SMV Socket Installed



30. 5/16 NC Lock nut
71. SMV Emblem bracket
93. SMV Socket
94. SMV Bracket
95. 1/4 NC x 3/4 Cap screw
96. 1/4 NC Nylock nut
97. 5/16 NC x 3/4 Carriage bolt
98. SMV Sign

Figure 19. SMV Sign Installation

INSTALL DISCHARGE TUBE (OPTIONAL)

1. Remove discharge cap from chipper. Save all hardware.

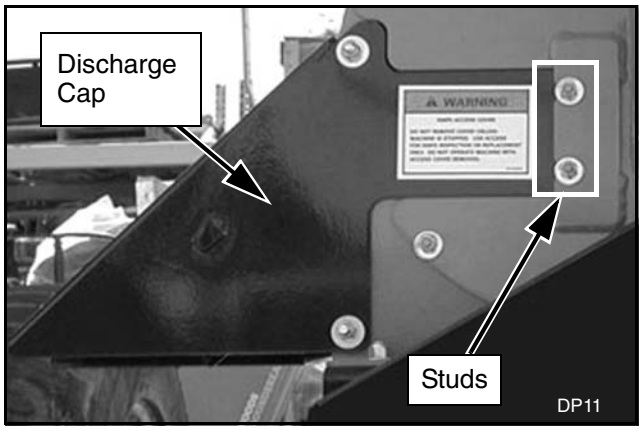


Figure 20. Remove Discharge Cap

2. Remove 5/16 NC nylock nuts and washers from the studs on the discharge cap.

3. Slide 5/16 studs on discharge tube assembly into slots on chipper housing.

4. Attach previously removed 5/16 NC nylock nuts and washers on studs.

5. Align chip deflector with lower hole of chipper housing and install 3/8 NC x 5-1/2" cap screw, two 3/8" flat washers, and 3/8" lock nut. Make sure cap screw goes through tube on the bottom of the chip deflector. Chipper deflector must be pointing upward to allow discharge material to flow through discharge tube.

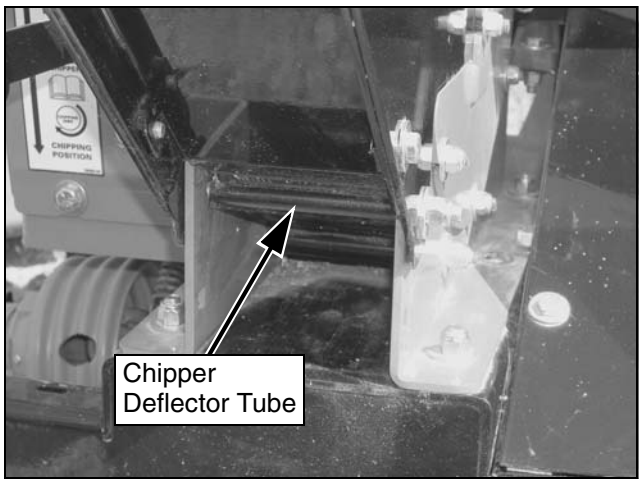


Figure 21. Chipper Deflector, Pointing Upward

6. Install second 3/8 NC x 5-1/2" cap screw, two 3/8" flat washers, and 3/8" lock nut in the top hole.

SHORTEN DRIVELINE

NOTE: On some smaller tractors the driveline may need to be shortened to allow connection to the PTO shaft. The pictures shown in these instructions are to be used as an example and do not show the chipper.

1. Attach equipment to the tractor 3-point hitch.
2. Raise and lower the equipment to determine the minimum distance between the tractor PTO shaft and the gearbox input shaft.
3. Leave the equipment in the minimum position.
4. Separate the driveline into two halves and connect them to the tractor PTO and equipment gearbox.
5. Place the two halves parallel to one another to determine how much the driveline must be shortened. See Figure 22.

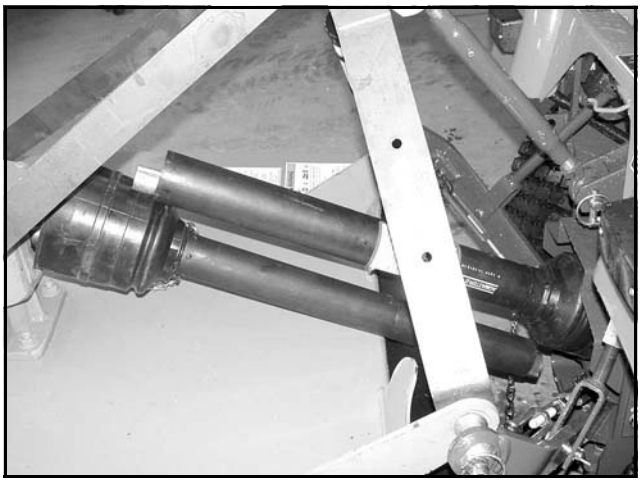


Figure 22. Drive Halves Placed Parallel

6. Measure from the end of the upper shield to the base of the bell on the lower shield (A). Add 1-9/16" to dimension (A). See Figure 23.

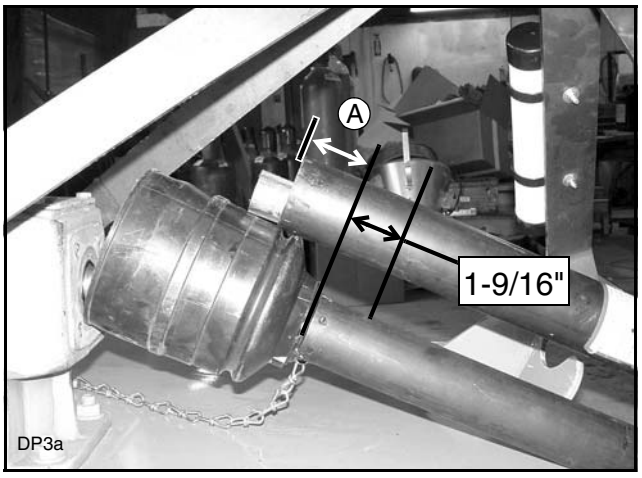


Figure 23. Determine Shield Length

7. Cut the shield to the overall dimension. See Figure 24.

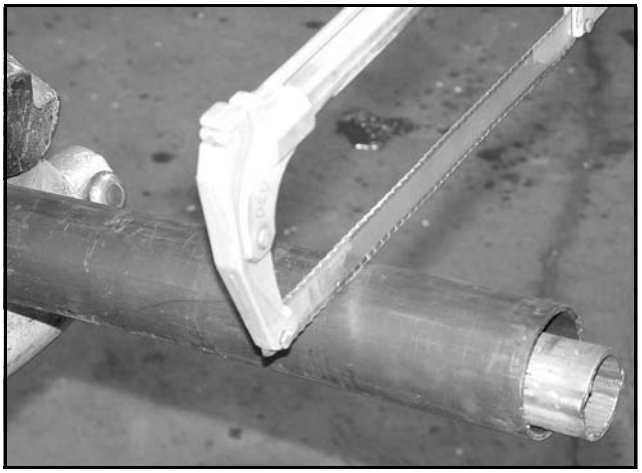


Figure 24. Cut Shield

8. Place the cutoff portion of the shield against the end of the shaft and use it as a guide. Mark and cut the shaft. See Figure 25.

Figure 25. Cut Shaft to Length

9. Repeat step 8 for other half of drive.
10. File and clean cut ends of both the drive halves.

DEALER CHECK LISTS

PRE-DELIVERY CHECK LIST

(DEALER'S RESPONSIBILITY)

Inspect chipper thoroughly after assembly to make sure it is set up properly before delivering it to the customer. The following check list is a reminder of points to inspect. Check off each item as it is found satisfactory, corrections are made, or services are performed.

___ Check all bolts to be sure they are properly torqued.

___ Check that all cotter pins are properly installed and secured.

___ Check that PTO shaft is properly installed.

___ Check and grease all lubrication points as identified in Service, Lubrication, page 16.

___ Check that blades have been properly installed with correct clearance.

DELIVERY CHECK LIST

(DEALER'S RESPONSIBILITY)

___ Show customer how to make adjustments. Describe the options available for this chipper and explain their purpose.

___ Explain importance of lubrication to customer and point out lubrication points on cutter.

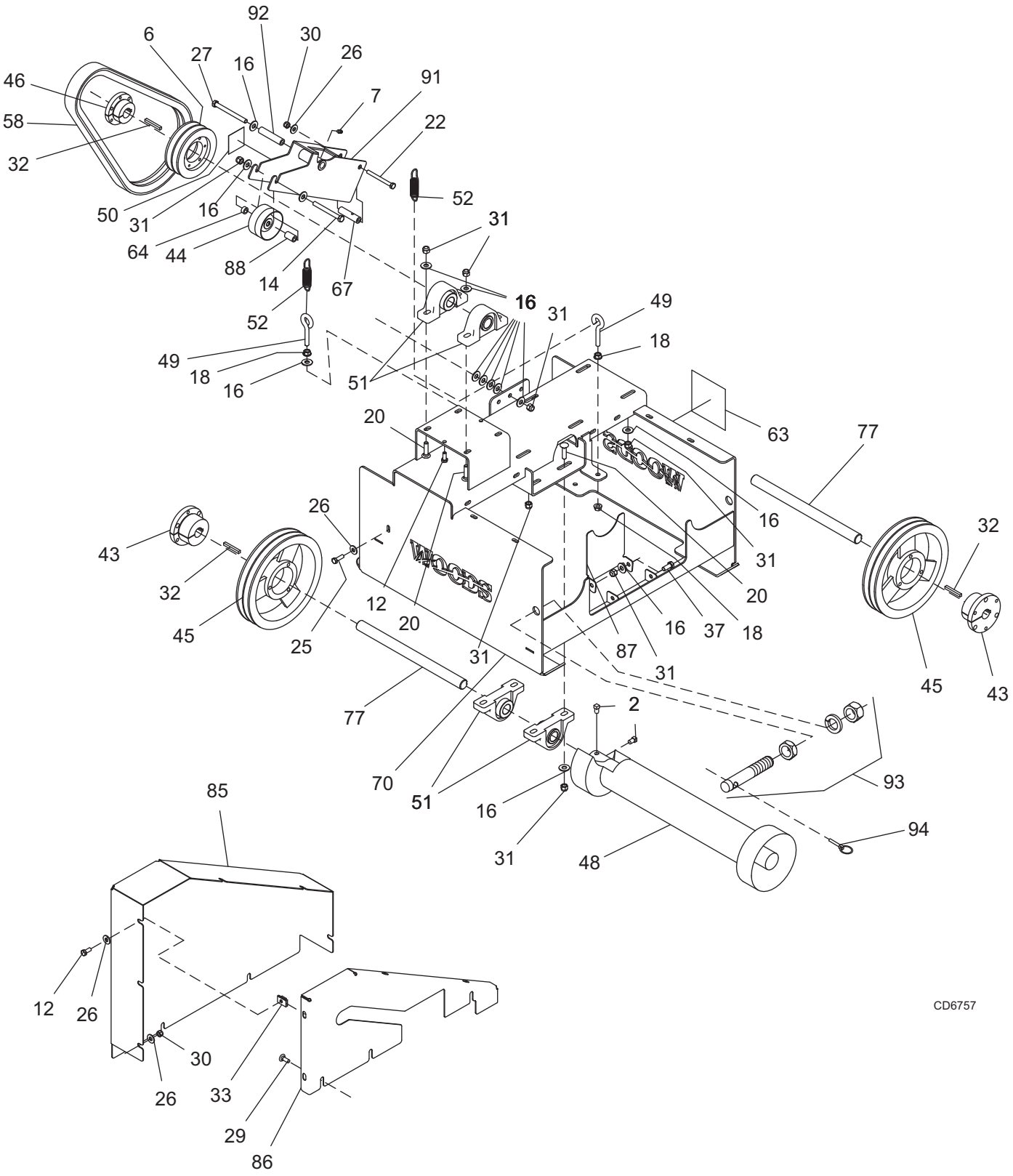
___ Point out all guards and shielding. Explain their importance and the safety hazards that exist when not kept in place and in good condition.

___ For mounted units, add wheel weights, ballast in front tires, and/or front tractor weight to enhance front end stability. A minimum 20% of tractor and equipment gross weight must be on front tractor wheels. When adding weight to attain 20% of tractor and equipment weight on front tractor wheels, you must not exceed the ROPS weight certification. Weigh the tractor and equipment. Do not estimate!

___ Present Operator's Manual and request that customer and all operators read it before operating equipment. Point out the manual safety rules, explain their meanings and emphasize the increased safety hazards that exist when safety rules are not followed.

___ Explain to customer that when equipment is transported on a road or highway, safety devices should be used to give adequate warning to operators of other vehicles.

TCH4500 BASE ASSEMBLY



TCH4500 BASE ASSEMBLY PARTS LIST

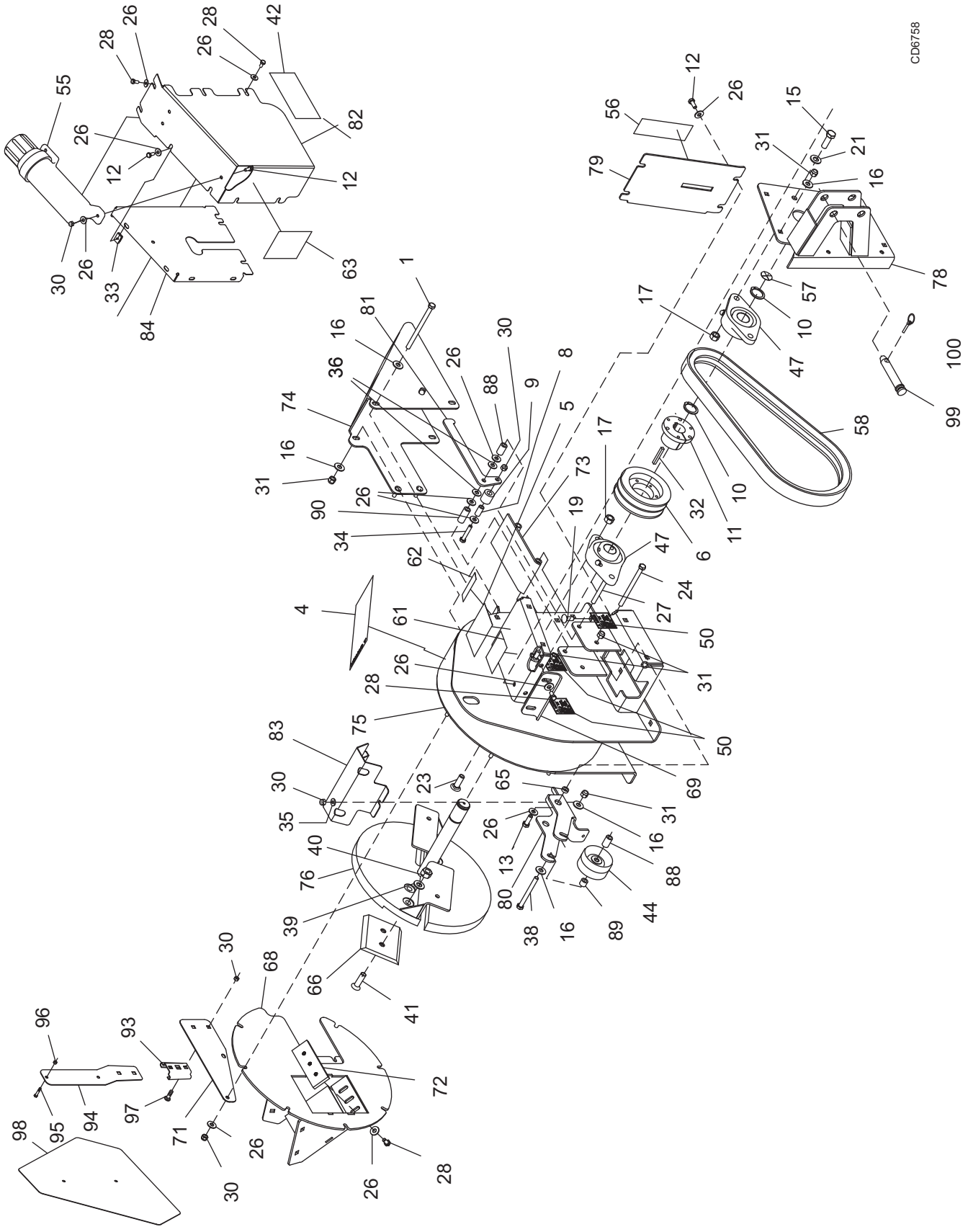
REF	PART	QTY	DESCRIPTION
2	1017428 *	2	3/8 NC x 1/2 Square head set screw
6	1015925	2	Sheave, 2B4.8 SDS
7	1015961	1	1/4 Self-tap grease fitting
12	6096 *	17	5/16 NC x 3/4 HHCS GR5
14	31138 *	1	3/8 NC x 3-1/2 HHCS GR5
16	565 *	36	3/8 Flat washer
18	70069	3	3/8 NC Flange whiz nut
20	51239 *	8	3/8 NC x 1-1/2 Carriage bolt GR5
22	21548 *	1	5/16 NC x 3-1/4 HHCS GR8
25	14562 *	2	5/16 NC x 1 HHCS GR5
26	4378 *	48	5/16 Flat washer
27	14478 *	2	3/8 NC x 4 HHCS GR5
29	1015916 *	7	5/16 NC x 7/8 Carriage bolt GR5
30	78181 *	24	5/16 NC Lock nut
31	71635	30	3/8 NC Elastic stop nut
32	1015930	4	Key, 1/4 sq x 2 plain
33	51590	8	Nut, 5/16 x 18 Timmerman U-type
37	S635X4 *	2	3/8 NC x 7/8 HHCS GR5
43	51283	2	Bushing 1
44	1015919	2	Pulley 3-1/4 Flat idler
45	51290	2	Sheave, 2B9.4 SK
46	1015957	1	Bushing, 1"
48	51275	1	Driveshaft (540 PTO) **(See Page 34)**
49	1015956	2	Eyebolt, 3/8 x 2
50	51361	4	Decal, danger
51	51482	4	Bearing, pillow block
52	51367	2	Spring, extension 3/4 OD
58	1015920	2	Belt
63	1003751	2	Decal, warning crush/pinch hazard
64	51636	1	Bushing
67	1015954	1	Spacer, .63 x 2.44
70	1017407	1	Chipper base housing
77	1015953	2	Jackshaft, chipper
85	1015952	1	Shield, forward belt
86	1015951	1	Shield, rear belt
87	1015950	1	Plate, PTO holder
88	1015945	3	Spacer, .63 x 1.035
91	1015949	1	Idler, weldment
92	1015948	1	Spacer, .63 x 2.880
93	51279	2	Pin, lift arm 7/8 x 5
94	51276	3	Pin, lynch 7/16 x 5/8
N/S	1017423	1	Goggles, eye protection
N/S	1017424	1	Earplugs, foam

N/S- Not Shown

HHCS - Hex Head Cap Screw

* Standard hardware, obtain locally

TCH4500 CHIPPER UPPER ASSEMBLY



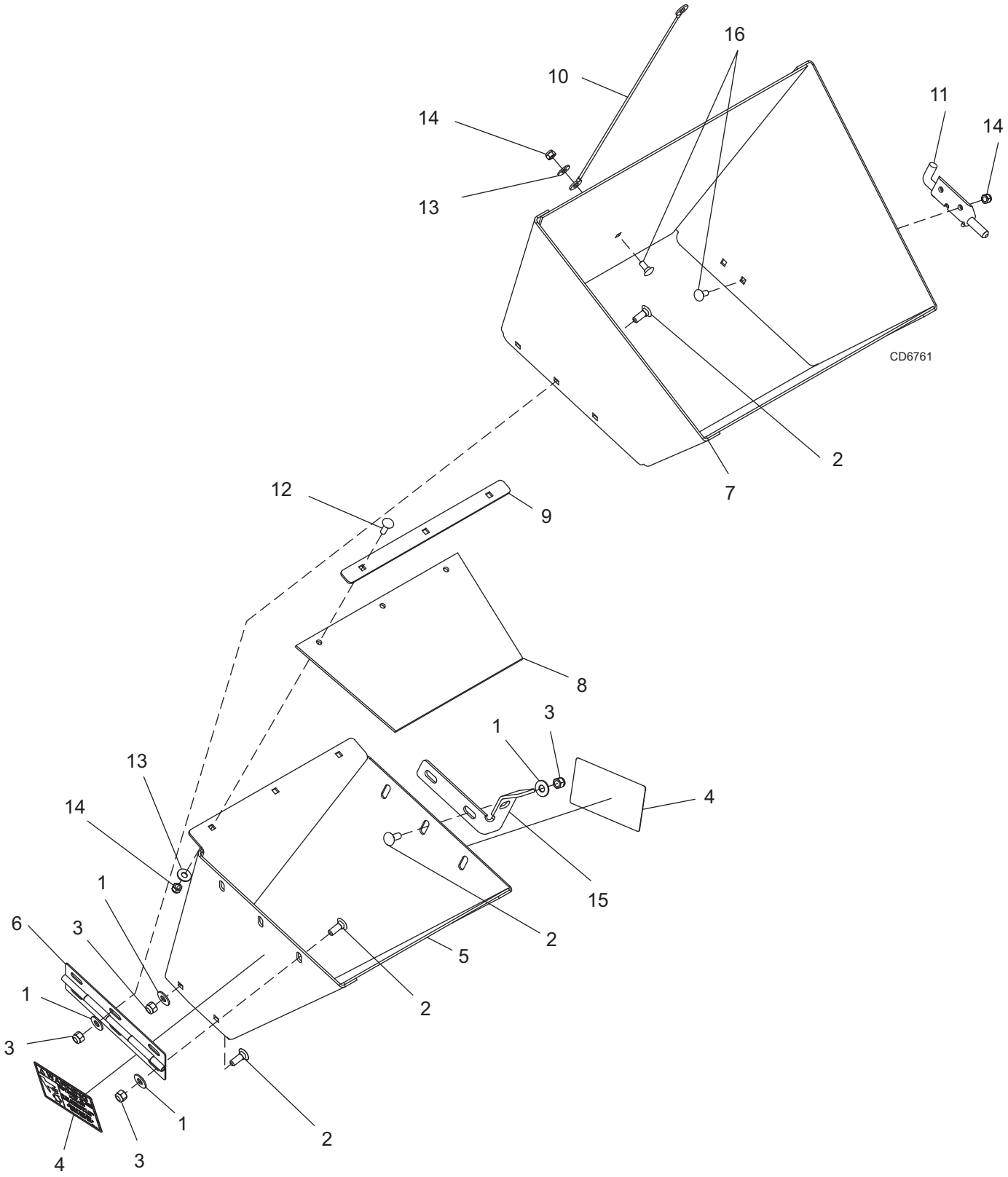
TCH4500 CHIPPER UPPER ASSEMBLY PARTS LIST

REF	PART	QTY	DESCRIPTION
1	58439	2	3/8 NC x 5-1/2 HHCS GR8
4	1017429	1	Decal, Operating instructions
5	1015967	1	Decal, Check bolts
6	1015925	2	Sheave, 2B4.8 SDS
8	1015926	1	Spacer, 0.5 x 1.00
9	1015927	1	Roller, 0.5 x 1.00 x 1.00 nylon
10	1015928	2	Snap ring, 1-1/4 ext. heavy duty
11	1015929	1	Bushing, 1-1/4 SDS
12	6096 *	17	5/16 NC x 3/4 HHCS GR5
13	839 *	2	3/8 NC x 1 HHCS GR5
15	3379 *	2	1/2 NC x 1-1/2 HHCS GR5
16	565 *	36	3/8 Flat washer
17	765 *	4	1/2 NC Lock nut
19	6697 *	10	3/8 NC x 1 Carriage bolt GR5
21	3598 *	2	1/2 SAE Flat washer
23	29893 *	2	1/2 NC x 1-1/2 Carriage bolt
24	1017402 *	1	3/8 NC x 5 HHCS GR5
26	4378 *	48	5/16 Flat washer
27	14478 *	2	3/8 NC x 4 HHCS GR5
28	5651 *	9	5/16 NC x 5/8 HHCS GR5
30	78181 *	32	5/16 NC Lock nut
31	71635	30	3/8 NC Elastic stop nut
32	1015930	4	Key, 1/4 sq x 2 plain
33	51590	8	Nut, 5/16 x 18 Timmerman U-type
34	4528 *	1	5/16 NC x 1-3/4 HHCS GR5
35	35155 *	2	5/16 SAE Flat washer
36	1017430	2	3/8 Nylon washer
38	13927 *	1	3/8 NC x 3-3/4 HHCS GR5
39	57816	4	1/2 Hardened flat washer
40	1015931	4	Lock nut, 1/2-13 Security
41	1015932	4	1/2 x 1-3/4 Flat head cap screw (ASTM F835)
42	51281	1	Decal, Danger (540 PTO)
44	1015919	2	Pulley, 3-1/4 flat idler
47	51254	2	Bearing, 1-1/4 dia x 2 bolt flange
50	51361	4	Decal, Danger
55	1003828	1	Manual tube
56	1015933	1	Decal, Chipper engagement
57	1015934	1	Decal, Rotating shaft
58	1015920	2	Belt
61	18866	1	Decal, Warning 540 PTO
62	18869	1	Decal, Danger shield missing small
63	1003751	2	Decal, Warning crush/pinch hazard
65	51394	2	Spacer
66	51459	2	Blade, 6" & 8" Chipper
68	1017404	1	Disk cover
69	1017431	1	Belt guide
71	1017432	1	Bracket SMV emblem
72	1015923	1	Anvil chipper
73	1015935	1	Chip deflector
74	1015963	1	Discharge cap
75	1015936	1	Chipper housing
76	1015937	1	4-1/2 PTO disk
78	1015938	1	Bearing, support
79	1015939	1	Panel, side
80	1015940	1	Bracket, idler
81	1015941	1	Lever, engagement
82	1015942	1	Shield, front belt
83	1015943	1	Shield, jackshaft
84	1015944	1	Shield, back belt
88	1015945	3	Spacer, .63 x 1.035
89	1015946	1	Spacer,.63 x .515
90	1015947	1	Spacer, .63 x 1.560
93	62484	1	Socket SMV emblem
94	1004251	1	SMV bracket
95	2457 *	2	1/4 NC x 3/4 HHCS GR5
96	FA254	2	1/4 NC Nylock nut
97	51248	2	5/16 x 3/4 Carriage bolt GR5
98	24611	1	Sign (SMV) Slow moving vehicle
99	51280	1	Pin, top link 3/4 x 4-1/2 lg
100	51276	3	Pin, lynch 7/16 x 5/8

HHCS - Hex Head Cap Screw

* Standard hardware, obtain locally

TCH4500 CHIPPER HOPPER ASSEMBLY

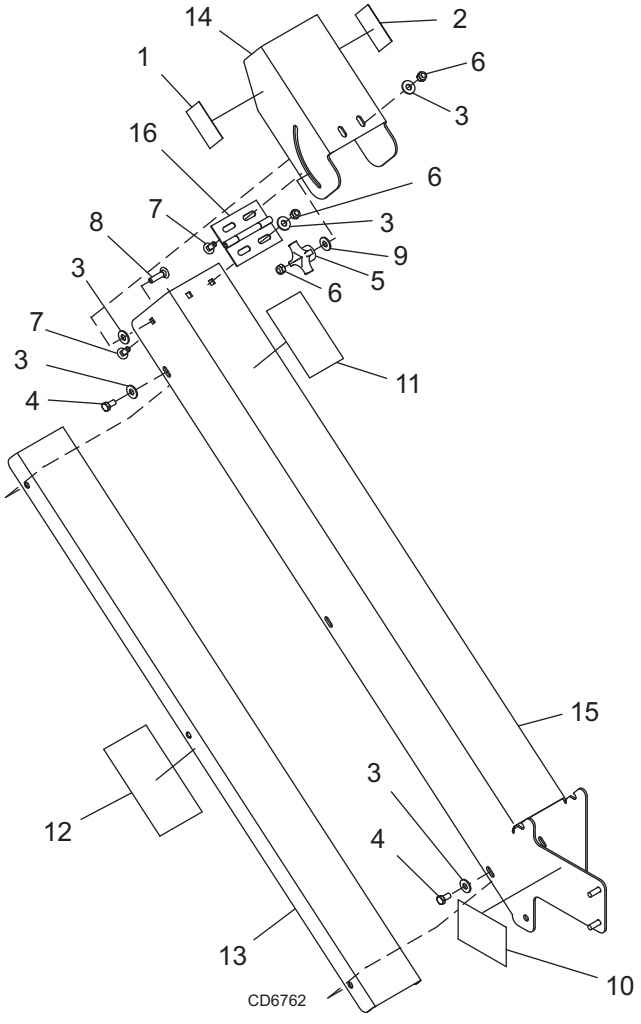


TCH4500 CHIPPER HOPPER ASSEMBLY PARTS LIST

REF	PART	QTY	DESCRIPTION
1	565 *	10	3/8 Flat washer
2	6697 *	10	3/8 NC x 1 Carriage bolt GR5
3	71635	10	3/8 NC Elastic stop nut
4	1017433	2	Decal, Warning rotating blade hazard
5	1017408	1	Hopper
6	1017434	1	Hinge chute extension
7	1017439	1	Hopper extension
8	1015921	1	Chipper hopper flap
9	1015962	1	Strip, flap retainer
10	1015922	1	Lanyard, steel w/pvc 1/8 x 20
11	1015924	1	Latch right hinge
12	51243 *	3	5/16 NC x 1 Carriage bolt GR5
13	4378 *	3	5/16 Flat washer
14	78181 *	3	5/16 NC Lock nut
15	1017436	1	Lock extension plate
16	51248 *	5	5/16 NC x 3/4 Carriage bolt GR5

* Standard hardware, obtain locally

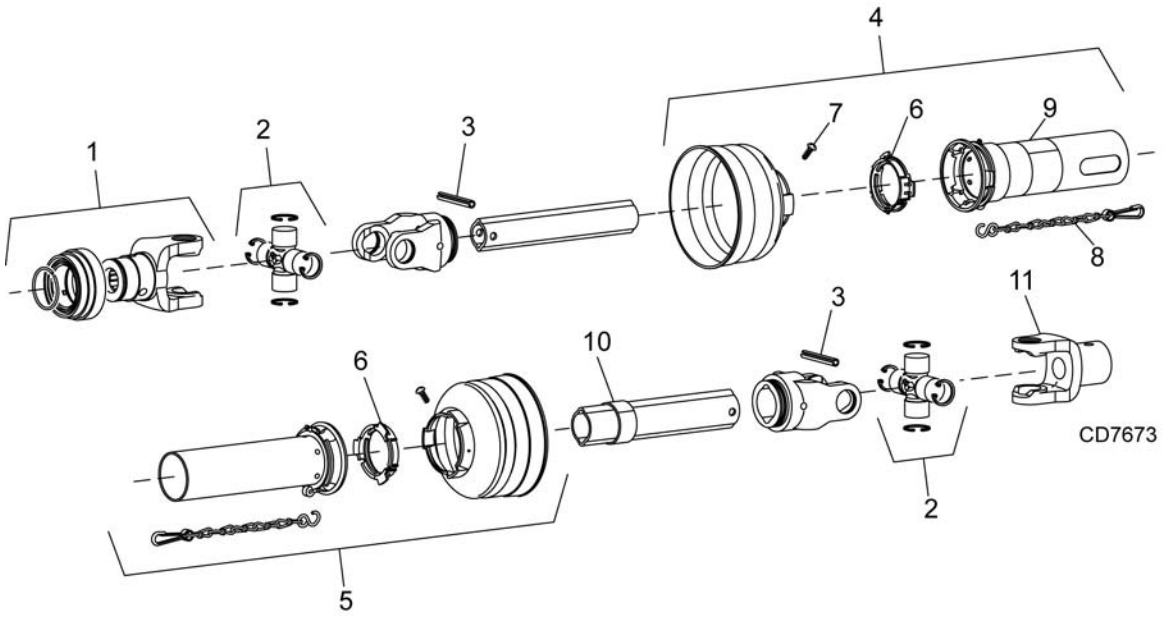
TCH4500 DISCHARGE TUBE KIT (OPTIONAL)



REF	PART	QTY	DESCRIPTION
1	20106	1	Decal, Reflector rear
2	20105	1	Decal, Reflector front
3	4378 *	11	5/16 Flat washer
4	5651 *	6	5/16 NC x 5/8 HHCS GR5
5	51244	1	Knob, Spout
6	78181 *	5	5/16 NC Lock nut
7	51248 *	4	5/16 x 3/4 Carriage bolt GR5
8	14458 *	1	5/16 NC x 1-1/4 Carriage bolt
9	1017410	1	5/16 Nylon washer
10	51284	1	Decal, access cover
11	51312	1	Decal, discharge
12	51373	1	Decal, danger
13	1017411	1	Top discharge chute
14	1017412	1	Cap discharge
15	1017413	1	Chipper discharge
16	1017414	1	Hinge discharge cap

* Standard hardware, obtain locally

TCH4500 & 5000 CHIPPER DRIVELINE ASSEMBLY



REF	PART	QTY	DESCRIPTION
A	1034602	1	TCH4500 Chipper Driveline, Complete
B	51275	1	5000 Chipper Driveline, Complete
1	1030877	1	Yoke, 2200 x 1-3/8 - 6 Spline QD
2	51596	2	U-Joint Cross & Bearing Kit
3	40775	2	10 mm x 65 mm Spring Pin
4	40759	1	Outer Shield Half, Complete (Includes Items 6, 7, 8 & 9) (Must Be Cut to Length)
5	40760	1	Inner Shield Half, Complete (Includes Items 6, 7,& 8) (Must Be Cut to Length)
6	40776	2	Bearing Ring, SC15
7	40778	2	Screw
8	40777	2	Shield Anti-Rotation Chain
9	18864	1	Decal, Danger Rotating Driveline (Included on Item 4)
10	33347	1	Decal, Danger Guard Missing
11	1030878	1	Yoke, 2200 x 3.15 x KD x 1.00

BOLT TORQUE CHART

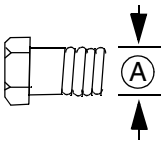
Always tighten hardware to these values unless a different torque value or tightening procedure is listed for a specific application.

Fasteners must always be replaced with the same grade as specified in the manual parts list.

Always use the proper tool for tightening hardware: SAE for SAE hardware and Metric for metric hardware.

Make sure fastener threads are clean and you start thread engagement properly.

All torque values are given to specifications used on hardware defined by SAE J1701 MAR 99 & J1701M JUL 96.



SAE SERIES TORQUE CHART

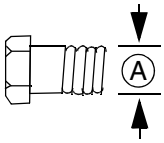
SAE Grade 2 (No Dashes)

SAE Bolt Head Identification

SAE Grade 5 (3 Radial Dashes)

SAE Grade 8 (6 Radial Dashes)

Ⓐ Diameter (Inches)	Wrench Size	MARKING ON HEAD					
		SAE 2		SAE 5		SAE 8	
		lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m
1/4"	7/16"	6	8	10	13	14	18
5/16"	1/2"	12	17	19	26	27	37
3/8"	9/16"	23	31	35	47	49	67
7/16"	5/8"	36	48	55	75	78	106
1/2"	3/4"	55	75	85	115	120	163
9/16"	13/16"	78	106	121	164	171	232
5/8"	15/16"	110	149	170	230	240	325
3/4"	1-1/8"	192	261	297	403	420	569
7/8"	1-5/16"	306	416	474	642	669	907
1"	1-1/2"	467	634	722	979	1020	1383



METRIC SERIES TORQUE CHART

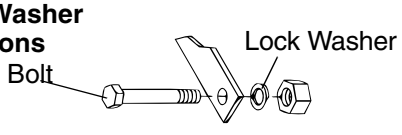
Metric Grade 8.8

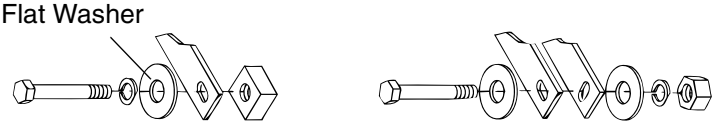
Metric Bolt Head Identification

Metric Grade 10.9

Ⓐ Diameter & Thread Pitch (Millimeters)	Wrench Size	Coarse Thread				Fine Thread				Ⓐ Diameter & Thread Pitch (Millimeters)
		Marking on Head				Marking on Head				
		Metric 8.8		Metric 10.9		Metric 8.8		Metric 10.9		
		N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	N-m	lbs-ft	
6 x 1.0	10 mm	8	6	11	8	8	6	11	8	6 x 1.0
8 x 1.25	13 mm	20	15	27	20	21	16	29	22	8 x 1.0
10 x 1.5	16 mm	39	29	54	40	41	30	57	42	10 x 1.25
12 x 1.75	18 mm	68	50	94	70	75	55	103	76	12 x 1.25
14 x 2.0	21 mm	109	80	151	111	118	87	163	120	14 x 1.5
16 x 2.0	24 mm	169	125	234	173	181	133	250	184	16 x 1.5
18 x 2.5	27 mm	234	172	323	239	263	194	363	268	18 x 1.5
20 x 2.5	30 mm	330	244	457	337	367	270	507	374	20 x 1.5
22 x 2.5	34 mm	451	332	623	460	495	365	684	505	22 x 1.5
24 x 3.0	36 mm	571	421	790	583	623	459	861	635	24 x 2.0
30 x 3.0	46 mm	1175	867	1626	1199	1258	928	1740	1283	30 x 2.0

Typical Washer Installations

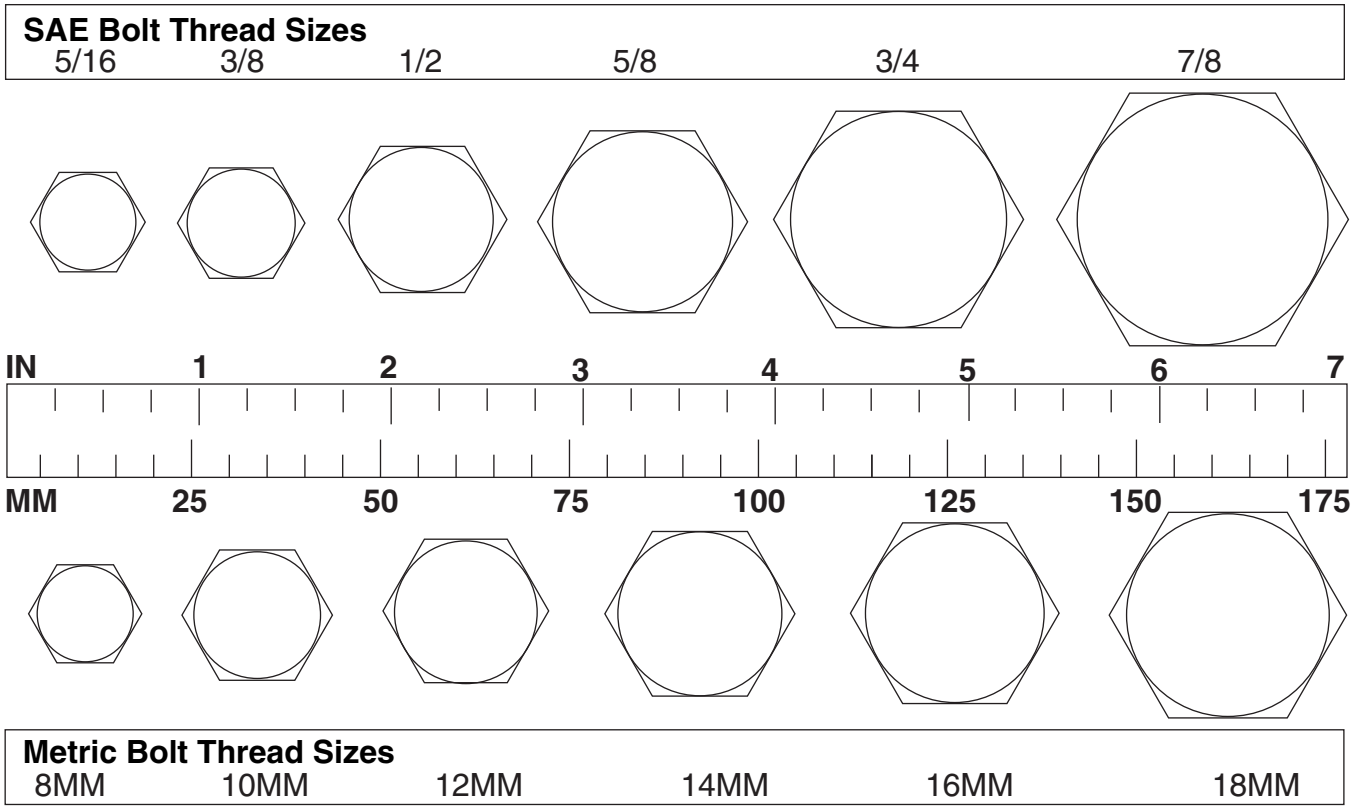




8/9/00

BOLT SIZE CHART

NOTE: Chart shows bolt thread sizes and corresponding head (wrench) sizes for standard SAE and metric bolts.



ABBREVIATIONS

AG ..... Agriculture
ASABE ..... American Society of Agricultural & Biological Engineers (formerly ASAE)
ASAE ..... American Society of Agricultural Engineers
ATF ..... Automatic Transmission Fluid
BSPP ..... British Standard Pipe Parallel
BSPTM ..... British Standard Pipe Tapered Male
CV ..... Constant Velocity
CCW ..... Counter-Clockwise
CW ..... Clockwise
F ..... Female
FT ..... Full Thread
GA ..... Gauge
GR (5, etc.) ..... Grade (5, etc.)
HHCS ..... Hex Head Cap Screw
HT ..... Heat-Treated
JIC ..... Joint Industry Council 37° Degree Flare
LH ..... Left Hand
LT ..... Left
m ..... Meter
mm ..... Millimeter
M ..... Male
MPa ..... Mega Pascal
N ..... Newton
NC ..... National Coarse
NF ..... National Fine
NPSM ..... National Pipe Straight Mechanical
NPT ..... National Pipe Tapered
NPT SWF ..... National Pipe Tapered Swivel Female
ORBM ..... O-Ring Boss - Male
P ..... Pitch
PBY ..... Power-Beyond
psi ..... Pounds per Square Inch
PTO ..... Power Take Off
QD ..... Quick Disconnect
RH ..... Right Hand
ROPS ..... Roll-Over Protective Structure
RPM ..... Revolutions Per Minute
RT ..... Right
SAE ..... Society of Automotive Engineers
UNC ..... Unified Coarse
UNF ..... Unified Fine
UNS ..... Unified Special

WARRANTY

(Replacement Parts For All Models Except Mow'n Machine™
Zero-Turn Mowers)

Woods Equipment Company ("WOODS") warrants this product to be free from defect in material and workmanship for a period of ninety (90) days from the date of delivery of the product to the original purchaser with the exception of V-belts, which will be free of defect in material and workmanship for a period of 12 months.

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of WOODS, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not cover normal wear or tear, or normal maintenance items.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

WOODS' obligation under this Warranty is limited to, at WOODS' option, the repair or replacement, free of charge, of the product if WOODS, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. **The product must be returned to WOODS with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.** WOODS shall complete such repair or replacement within a reasonable time after WOODS receives the product. THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY. THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. WOODS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND WOODS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

WOODS shall not be liable for any incidental or consequential losses, damages or expenses, arising directly or indirectly from the product, whether such claim is based upon breach of contract, breach of warranty, negligence, strict liability in tort or any other legal theory. Without limiting the generality of the foregoing, Woods specifically disclaims any damages relating to (i) lost profits, business, revenues or goodwill; (ii) loss of crops; (iii) loss because of delay in harvesting; (iv) any expense or loss incurred for labor, supplies, substitute machinery or rental; or (v) any other type of damage to property or economic loss.

This Warranty is subject to any existing conditions of supply which may directly affect WOODS' ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, service person, salesperson, or employee of any company, including without limitation, WOODS, its authorized dealers, distributors, and service centers, is authorized to alter, modify, or enlarge this Warranty.

Answers to any questions regarding warranty service and locations may be obtained by contacting:

Woods Equipment Company

2606 South Illinois Route 2
Post Office Box 1000
Oregon IL 61061

800-319-6637 tel
800-399-6637 fax
www.WoodsEquipment.com

WOODS®

ALITEC™
BMP®
CENTRAL FABRICATORS®
GANNON®
GILL®
WAIN-ROY®
WOODS®

WARRANTY

All Models Except Mow'n Machine™ Zero-Turn Mowers

Please Enter Information Below and Save for Future Reference.

Date Purchased: _____ From (Dealer): _____

Model Number: _____ Serial Number: _____

Woods Equipment Company ("WOODS") warrants this product to be free from defect in material and workmanship. Except as otherwise set forth below, the duration of this Warranty shall be for TWELVE (12) MONTHS COMMENCING ON THE DATE OF DELIVERY OF THE PRODUCT TO THE ORIGINAL PURCHASER.

All current model loaders and backhoes are warranted for two (2) years from the date of delivery to the original purchaser.

The warranty periods for specific parts or conditions are listed below:

Part or Condition Warranted	Model Number	Duration (from date of delivery to the original purchaser)
Gearbox Seals	All units listed below	2 years
Gearbox components	BW1260, BW1620, BW1800, BW2400	8 years
	BW240HD, BW180HD, BW180HB, BW126HB	7 years
	BB48X, BB60X, BB72X, BB84X, BB600X, BB720X, BB840X, BB6000X, BB7200X, BB8400X, DS1260, DSO1260, DS1440, TS1680, BW126-3, BW180-3, BW240	6 years
	PHD25, PHD35, PHD65, PHD95, DS96, DS120, RCC42, RD990X, PRD6000, PRD7200, PRD8400, S15CD, S20CD, S22CD, S25CD, S27CD, S30CD BW15LH, TC/R74, TC/R68, TC/R60, TBW144, TBW180, TBW204, HC48, HC54, HC60, HC72	5 years
	RDC54, RD60, RD72, TBW150C, TS/R60, TS/R52, TS/R44	3 years (1 year if used in rental or commercial applications)
Blade spindles	RD990X, PRD6000, PRD7200, PRD8400, TBW144, TBW180, TBW204	3 years
Rust-through	BB600, BB720, BB840, BB6000, BB7200, BB8400, BW126-3, BW126HB, BW180-3, BW180HB, BW180HD, BW1260, BW1800, BW240, BW240HD, DS1260, DSO1260, DS1440, TS1680	10 years

Under no circumstances will this Warranty apply in the event that the product, in the good faith opinion of WOODS, has been subjected to improper operation, improper maintenance, misuse, or an accident. This Warranty does not apply in the event that the product has been materially modified or repaired by someone other than WOODS, a WOODS authorized dealer or distributor, and/or a WOODS authorized service center. This Warranty does not cover normal wear or tear, or normal maintenance items. This Warranty also does not cover repairs made with parts other than those obtainable through WOODS.

This Warranty is extended solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this Warranty does not transfer to the third party purchaser in any way. There are no third party beneficiaries of this Warranty.

WOODS makes no warranty, express or implied, with respect to engines, batteries, tires or other parts or accessories not manufactured by WOODS. Warranties for these items, if any, are provided separately by their respective manufacturers.

WOODS' obligation under this Warranty is limited to, at WOODS' option, the repair or replacement, free of charge, of the product if WOODS, in its sole discretion, deems it to be defective or in noncompliance with this Warranty. **The product must be returned to WOODS with proof of purchase within thirty (30) days after such defect or noncompliance is discovered or should have been discovered, routed through the dealer and distributor from whom the purchase was made, transportation charges prepaid.** WOODS shall complete such repair or replacement within a reasonable time after WOODS receives the product. THERE ARE NO OTHER REMEDIES UNDER THIS WARRANTY. THE REMEDY OF REPAIR OR REPLACEMENT IS THE SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. WOODS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND WOODS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY AND/OR ANY IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

WOODS shall not be liable for any incidental or consequential losses, damages or expenses, arising directly or indirectly from the product, whether such claim is based upon breach of contract, breach of warranty, negligence, strict liability in tort or any other legal theory. Without limiting the generality of the foregoing, Woods specifically disclaims any damages relating to (i) lost profits, business, revenues or goodwill; (ii) loss of crops; (iii) loss because of delay in harvesting; (iv) any expense or loss incurred for labor, supplies, substitute machinery or rental; or (v) any other type of damage to property or economic loss.

This Warranty is subject to any existing conditions of supply which may directly affect WOODS' ability to obtain materials or manufacture replacement parts.

No agent, representative, dealer, distributor, serviceperson, salesperson, or employee of any company, including without limitation, WOODS, its authorized dealers, distributors, and service centers, is authorized to alter, modify, or enlarge this Warranty. Answers to any questions regarding warranty service and locations may be obtained by contacting:

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